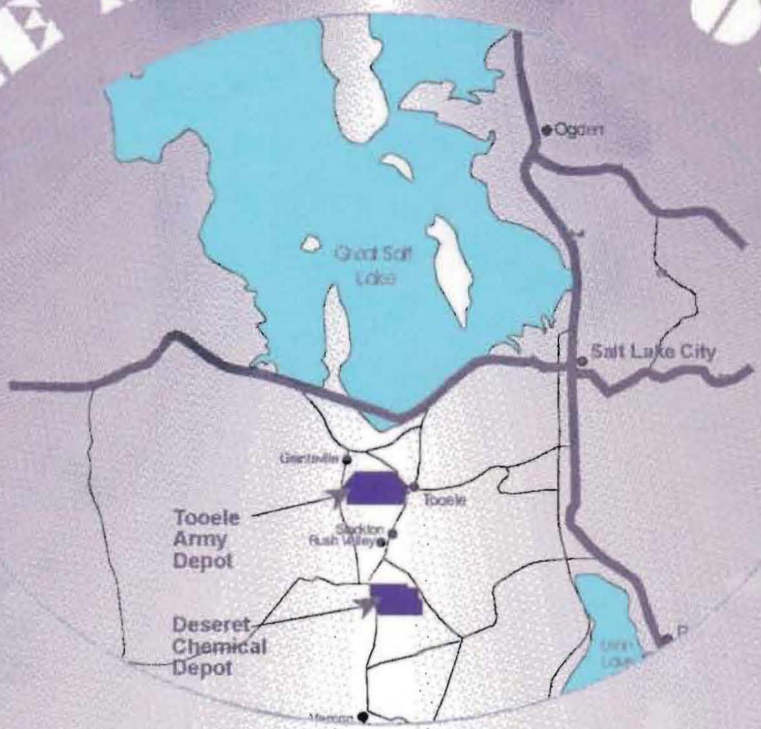
Final Site Characterization Report
for
Closure of Building 659
Polychlorinated Biphenyls Storage Area

TOOELE ARMY DEPOT, UTAH



14 March 1997

Prepared by:

JE JACOBS ENGINEERING

Prepared for:

U. S. Army Corps of Engineers

Review Comments from USEPA, dated 04 November 1996 (by Floyd Nichols).

Jacobs Engineering Group Inc. 1996. *Draft Site Characterization Report for Closure of Building 659 Polychlorinated Biphenyls Storage Area.* 21 August.

GENERAL COMMENTS:

Comment #1 Overall the document(s) clearly state (s) the objectives, regulatory guidance and cleanup criteria used, and conclusions.

Response #1 No response required.

PCB Area:

Comment #2 Analysis of fresh samples, collected from the affected PCB-contaminated area, will determine the adequacy or efficacy of floor washing. Based on an evaluation of those samples, the BCT may need to meet and consider TEAD recommendations for further action(s) (repeated washing(s), another remediation method, etc.).

Response #2 JE agrees. Following floor washing, surface wipe sample results will indicate if the affected surfaces are within the PCB surface concentration limits (10 μg/100 cm^2) allowed for nonrestricted use. Additional actions may be required for a nonrestricted use clearance.

FINAL SITE CHARACTERIZATION REPORT
FOR
CLOSURE OF BUILDING 659
POLYCHLORINATED BIPHENYLS STORAGE AREA
TOOELE ARMY DEPOT, UTAH

Prepared for:

DEPARTMENT OF THE ARMY
UNITED STATES ARMY DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
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Contract No. DACA05-92-D-0040, Delivery Order 19

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14 March 1997

FINAL SITE CHARACTERIZATION REPORT

FOR

CLOSURE OF BUILDING 659

POLYCHLORINATED BIPHENYLS STORAGE AREA

TOOELE ARMY DEPOT, UTAH

14 March 1997

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Federal Contract No. DACA 05-92-D-0040
Delivery Order No. 019

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ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

µg	micrograms
^0C	degrees centigrade
ASTM	American Society for Testing and Materials
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm^2	square centimeter
COC	chain of custody
DCB	decachlorobiphenyl
DI	deionized
DOT	U.S. Department of Transportation
DRMO	Defense Reutilization and Marketing Office
EPA	U.S. Environmental Protection Agency
FD	Field Duplicate
FFA	Federal Facilities Agreement
FSP	Field Sampling Plan
HSP	Health and Safety Plan
ID	identification
IDW	investigation-derived waste
Jacobs	Jacobs Engineering Group Inc.
mg/kg	milligrams per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NRC	U.S. Nuclear Regulatory Commission
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
PCB	polychlorinated biphenyl
PPE	personal protective equipment
ppm	parts per million

QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SOW	Scope of Work
SPDL	South Pacific Division Laboratory
SWMU	Solid Waste Management Unit
TEAD	Tooele Army Depot
TCX	tetrachloro-1,3-xylene
TM	Technical Manager
TSCA	Toxic Substances Control Act
UDEQ	Utah Department of Environmental Quality
USACE	United States Army Corps of Engineers
VOA	volatile organic analyte
Work Plan	Site Survey Work Plan
WPS	Work Plan Summary

EXECUTIVE SUMMARY

Three types of transformers are known to have been stored within the Building 659 PCB Storage Area, Solid Waste Management Unit 33 (SWMU 33)/Operable Unit 5 (OU 5)—non-PCB transformers (0-50 ppm); PCB-contaminated transformers (50-500 ppm); and PCB transformers (> 500 ppm). Minor spills and subsequent cleanup have been documented. The purpose of this investigation was to characterize the site and provide a basis for its ultimate release for unrestricted use.

Samples were collected from the concrete floor, wood walls, and masonry walls of the PCB Storage Area; composited; and analyzed for the presence of residual PCB contamination. The following results were obtained:

- Total PCBs were found in discrete concrete core samples at concentrations as high as 7.1 mg/kg.
- Analysis of composite samples indicated that no single sample result could have exceeded the non-restricted use criterion of 10 ppm (soil).
- Certain stained areas of the wood walls revealed PCB contamination at sub-ppm levels.
- No evidence of PCBs was found within the masonry wall.

Definitive evidence of past PCB releases within the PCB Storage Area has been obtained. Since concrete is defined as a non-impervious surface (40CFR, Section 761.123), the highest discrete concrete core sample concentration of 7.1 mg/kg was compared to the soil limit of 25 mg/kg (restricted use) and 10 mg/kg (nonrestricted use). Based on these results, removal of contaminated concrete need not be considered. The definitive existence of PCBs require that the surface concentrations in the contaminated areas meet the solid surface maximum level of 10 $\mu g/100\ cm^2$ for nonrestricted use.

It is recommended the floor and stained areas of the walls be cleaned to remove surface PCB contamination and then tested with wipe surface samples. Once the wipe sample results show floor and wall surfaces meet the standard, the PCB storage area of the building can be released for nonrestricted use.

The further task of designing an approved remedial action will be required. A recommended course of action following EPA guidance is discussed. The remedial design will include the

preparation of plans and specifications for implementation of remedial action by a designated remedial action contractor contracted by USACE, Sacramento District.

1. INTRODUCTION

The United States Army Corps of Engineers (USACE), Sacramento District, has contracted with Jacobs Engineering Group Inc. (Jacobs) for the site characterization sampling for closure of a Polychlorinated Biphenyl (PCB) Storage Area located in Building 659 at Tooele Army (TEAD), Tooele, Utah (Figures 1-1 through 1-3).

A Site Survey Work Plan (Work Plan) was developed to detail the overall approach and sequence of events Jacobs intended to take to complete the PCB sample collection at Building 659. The Work Plan was divided into two volumes and includes a Work Plan Summary (WPS), Field Sampling Plan (FSP), Quality Assurance Project Plan (QAPP), and Health and Safety Plan (HSP) (Jacobs 1996a&b).

The project addressed by the Work Plan was first detailed in the USACE Scope of Work (SOW) for *Confirmation Sampling and Surveying for Closure of Building 659, PCB and Radiological Storage Areas, Tooele Army Depot, North Depot, Utah,* (USACE, 1995) dated 18 August 1995. In addition to the SOW, the Final *Tooele Army Depot - North Area, Record of Decision* [ROD] *for Operable Units 5, 6, 7, and 10,* (U.S. Army Environmental Center, 1994) provided the write-up for the Operable Unit (OU) including a Declaration and Decision Summary.

1.1 OBJECTIVES AND SCOPE

Ultimately, the objective is to decommission the PCB Storage Area (Solid Waste Management Unit [SWMU] 33/OU 5) and release that portion of Building 659 for nonrestricted use. The approved Work Plan presented the procedures required for PCB site characterization sampling for generating data necessary to verify whether or not residual PCB contamination exists within the PCB Storage Area, and whether detected levels of PCB contamination exceed established clean closure criteria. The PCB Storage Area site sampling and reporting must satisfy all appropriate regulatory agencies.

The SOW required:

- Developing the plans and procedures required for submittal to the USACE for performance of the project

- Mobilizing the appropriate personnel, materials, and equipment to TEAD
- Conducting the PCB site characterization sampling in the building
- Packaging and storing any waste, decontamination liquid, and waste personal protective equipment (PPE) generated during sampling activities
- Verifying and interpreting analytical laboratory results
- Providing a site characterization report to the USACE and TEAD upon project completion

1.2 Regulatory Requirements

TEAD is a National Priorities List (NPL) site, and SOW tasks followed Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and National Oil and Hazardous Substances Pollution Contingency Plan (NCP) guidelines. In addition, SOW efforts followed Toxic Substances Control Act (TSCA) and Resource Conservation and Recovery Act (RCRA) guidelines.

1.2.1 Agency Guidelines

As previously stated, TEAD would like to decommission the PCB Storage Area (SWMU 33/OU 5) and release that portion of Building 659 for nonrestricted use. The federal closure regulations and the State of Utah performance standards are presented below.

U.S. Environmental Protection Agency

PCB storage closure requirements are outlined in U.S. Environmental Protection Agency (EPA), PCB Regulations, 40 Code of Federal Regulations (CFR), Part 761. This policy establishes criteria EPA will use to evaluate the adequacy of cleanup of spills resulting from the release of materials containing PCBs at concentrations of 50 parts per million (ppm) or greater. This policy applies to spills which occurred after 4 May 1987. According to 40CFR761 Subpart, old spills which were discovered prior to 4 May 1987 require a site-by-site evaluation. Therefore, spills which occurred before 4 May 1987 are to be decontaminated to requirements established at the discretion of EPA. In this case, such requirements are established through EPA Region VIII.

According to the *TSCA Guidance Manual for Commercial PCB Storage Facility Applications*, Office of Toxic Substances, EPA, dated 18 October 1989, *all* sources of PCB contamination in

a facility are subject to Spill Clean-up Policy at closure, even if the contamination occurred before 4 May 1987.

State of Utah, Department of Environmental Quality

Closure must be certified in accordance with the requirements as outlined in the Utah Department of Environmental Quality (UDEQ) Hazardous Waste Management Rules (UDEQ 1996). In general, the state requirements follow the federal regulations.

1.2.2 Identify All Procedures And Regulations

The PCB Storage Area in Building 659 is a TSCA-regulated facility, as stated in the ROD. In the ROD process for SWMU 33/OU 5, the No Action alternative was selected as the most acceptable alternative. However, the ROD states that closure of the facility would be conducted under TSCA regulations and would satisfy Base Realignment and Closure (BRAC) requirements. Additionally, it is stipulated that closure will meet CERCLA requirements and satisfy RCRA Corrective Action obligations in the TEAD Federal Facilities Agreement (FFA) (EPA, et.al., 1991). The proposed PCB sampling scheme was developed using the guidance presented in *Verification of PCB Spill Cleanup by Sampling and Analysis* (EPA, 1985) and *Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup* (EPA, 1986).

1.2.3 Define The Release Criteria

The Requirements for Spill Cleanup (40CFR761.125) fully describes the numerical target decontamination concentration levels for restricted and nonrestricted access areas (refer to Table 1-1). Based on 40CFR761.125, the target decontamination concentration level for the Building 659 PCB Storage Area (a non-restricted use, residential/commercial, high contact area with non-impervious, indoor solid surfaces) is 10 micrograms/100 square centimeters (10 $\mu g/100\ cm^2$) as measured by the standard wipe test.

1.3 Site Description and Operating History

The PCB Storage Area in Building 659 (SWMU 33/OU 5) is a TSCA-regulated facility, as stated in the ROD. The facility has a concrete floor (180 feet by 250 feet), concrete perimeter berm (8

inches high), and diversion structures at each entrance for the containment of oil spills. The waterproof sealant used to seal all expansion joints and any hairline cracks is an Eternaflex Brand two-component urethane sealant, or equivalent (Plate FE-2556: Renovate Bldg #659 for PCB Storage [12/13/79]). The walls within the building are constructed of wood.

The facility began operating in 1979 and was used to store thousands of transformers that were once stored in open storage sites. The transformers were stored within the building on open pallets and in wooden crates. During the operation of Building 659, established procedures were followed to permit the safe storage and handling of items containing PCBs. In addition, procedures were in place to ensure containment, cleanup, and proper disposal of any spills occurring within the storage area. Soil and dust are collected during periodic sweep downs of the building and are properly drummed and disposed.

Record searches indicate that PCB spills occurred at SWMU 33/OU 5. Records of EPA inspections confirm that the oil spilled contained less than 50 ppm PCBs. Available records and surveys are attached as Attachment 1 of this report. The potentially contaminated materials were drummed, appropriately marked, and stored for disposal (EA, 1988). PCB disposal is managed by the Defense Reutilization and Marketing Office (DRMO) and conducted by U.S. Pollution Control, Inc. There is no evidence that any uncontrolled release to environmental pathways occurred as a result of the operations of this facility.

1.4 Report Organization

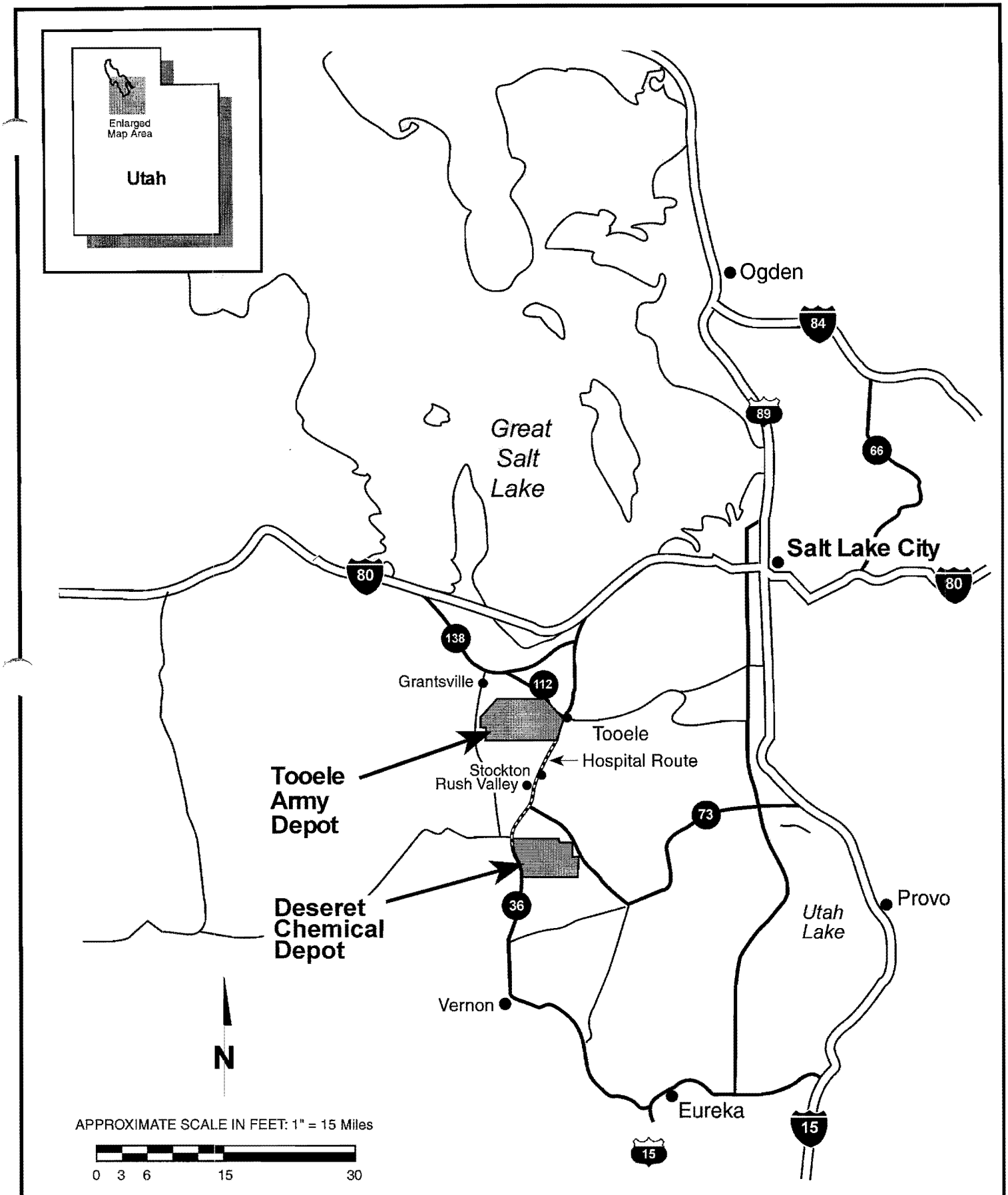
Section 2.0 provides the site characterization sampling rational and approach and selected field equipment and field procedures (including quality assurance/quality control [QA/QC]). Section 3.0 presents the laboratory results for concrete floor samples and wood/masonry wall samples, and comparison of findings with release criteria. Section 4.0 presents the data quality assessment and summary and conclusions. Section 5.0 lists the project references.

Table 1-1

Requirements For PCB Spill Cleanup (40CFR761.125) *

	Solid Surfaces									Soil	Comments
	Industrial	Residential/ Commercial	High Contact	Low Contact	Impervious	Non-Impervious	Outdoor	Indoor	Target decontamination concentration level**	Target decontamination concentration level	
Restricted use solid surfaces											
electrical substations	-	-	-	-	X	X	X	-	100 µg/100 cm^2	-	-
other surfaces	-	-	X	-	-	-	-	-	10 µg/100 cm^2	-	-
other surfaces	-	-	-	X	X	-	-	X	10 µg/100 cm^2	-	-
other surfaces	-	-	-	X	-	X	-	X	10 µg/100 cm^2	-	-
other surfaces	-	-	-	X	-	X	-	X	100 µg/100 cm^2	-	w/ encapsulation
other surfaces	-	-	-	X	X	X	X	-	100 µg/100 cm^2	-	-
Restricted use soil											
electrical substations	-	-	-	-	-	-	X	-	-	25-50 ppm***	option: negotiate
soil	-	-	-	-	-	-	-	-	-	25 ppm	-
Nonrestricted use solid surfaces											
other surfaces	-	X	X	-	-	-	X	X	10 µg/100 cm^2	-	-
other surfaces	-	-	-	X	X	-	X	X	10 µg/100 cm^2	-	including vault areas
other surfaces	-	-	-	X	-	X	X	-	10 µg/100 cm^2	-	-
other surfaces	-	-	-	X	-	X	X	-	100 µg/100 cm^2	-	w/ encapsulation
Nonrestricted use soil											
soil	-	-	-	-	-	-	-	-	-	10 ppm	w/ 10-inch soil cover
soil	-	-	-	-	-	-	-	-	-	1 ppm	no cover

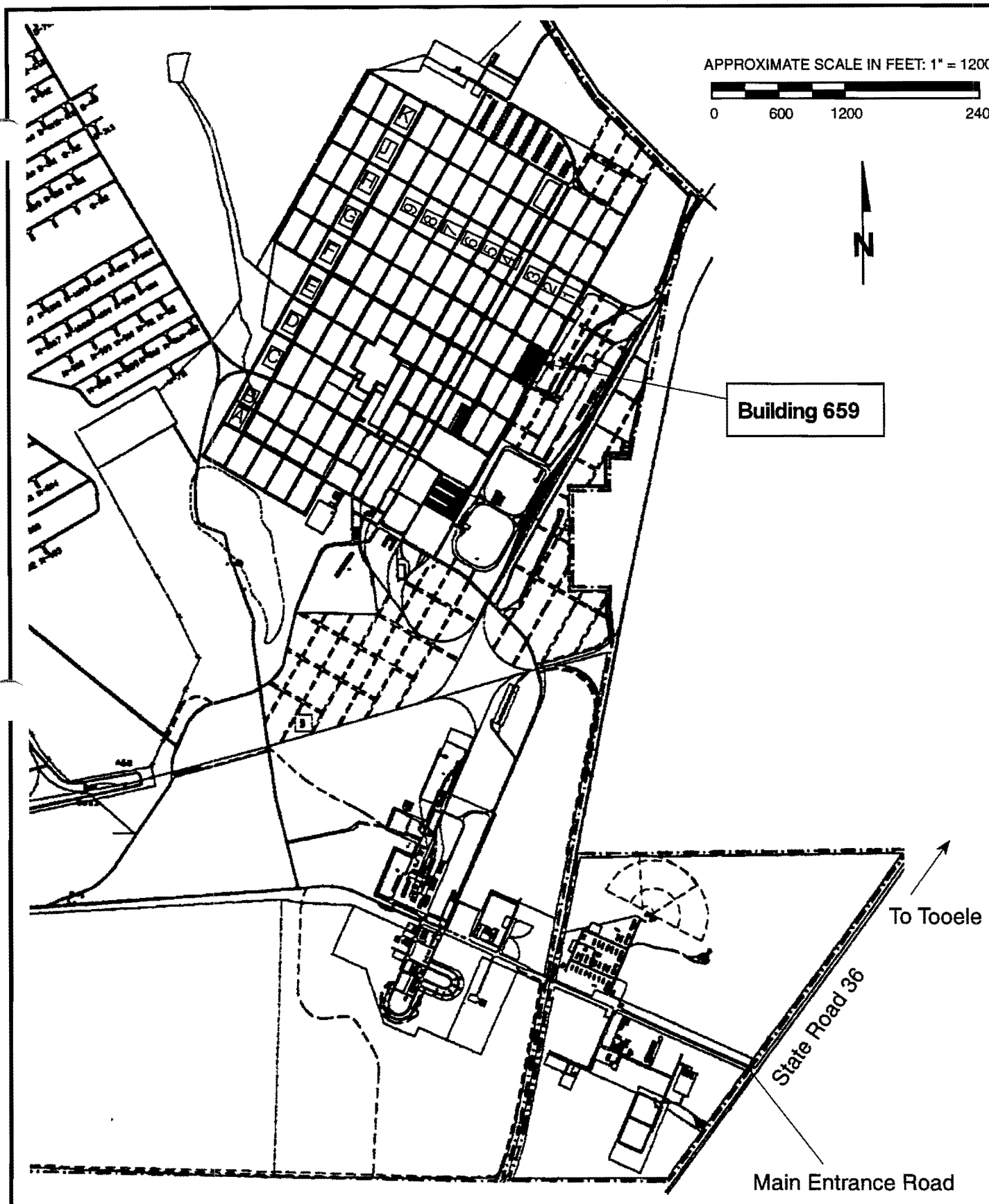
* PCBs at concentration > 50 ppm
** As determined by standard wipe test
*** PPM is equivalent to mg/kg



JACOBS ENGINEERING

File: g:\environ\cadd\tooele\d019\slmhr.fh3 Drawn by: SB Project No. 27H10319	Date: 4/15/96	**SITE LOCATION MAP** TOOELE ARMY DEPOT TOOELE, UTAH	FIGURE 1-1

Reference: Kleinfelder File 0320A



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BUILDING 659 LOCATION MAP

TOOELE ARMY DEPOT
TOOELE, UTAH

FIGURE
1-2

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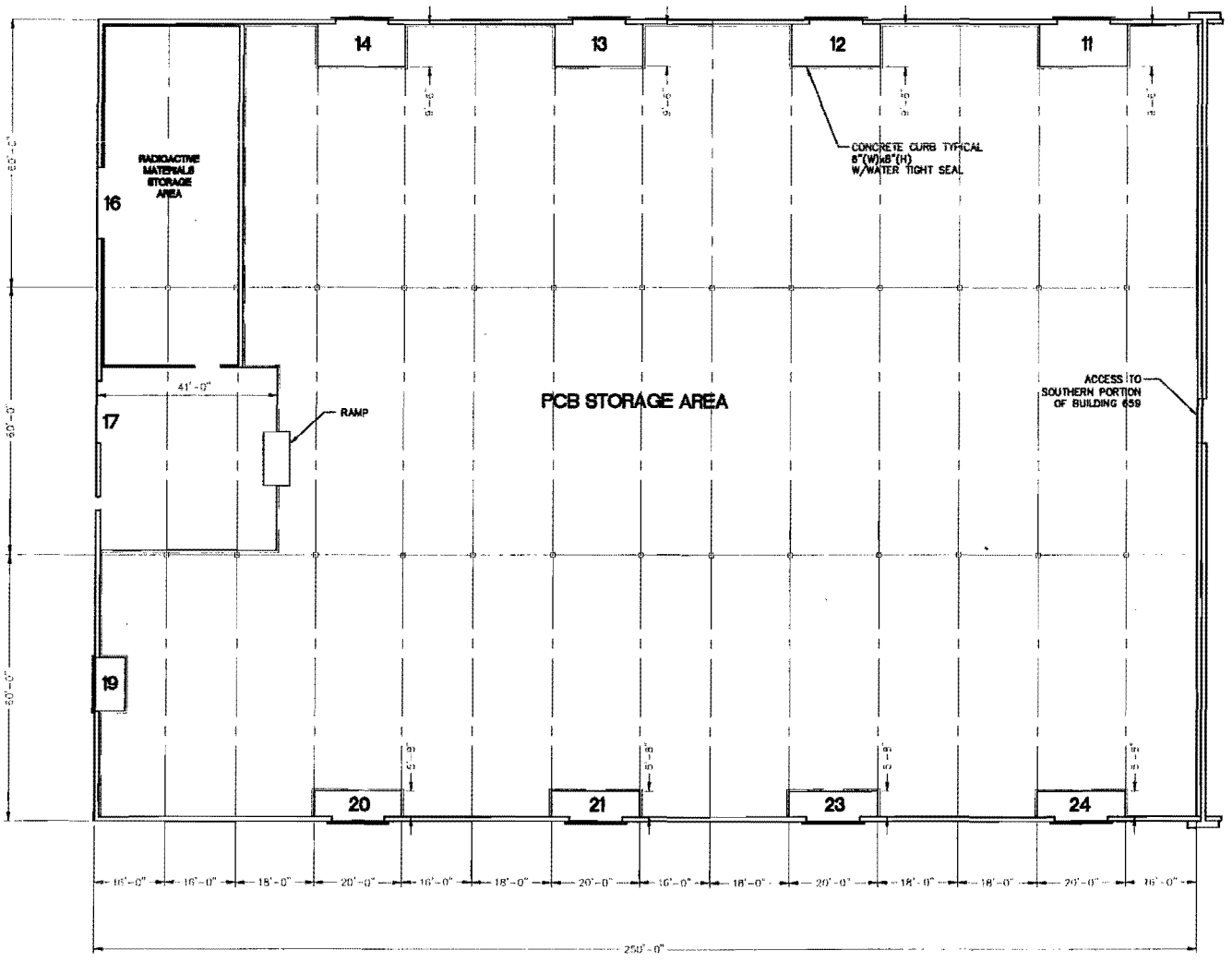
Date: 4/9/96

Reference: Kleinfelder file 0320B



N

10 0 10 20 30 40

Scale In Feet

1:480

LEGEND

14 Rollup Door Designation

JACOBS ENGINEERING	BUILDING 659 – PCB STORAGE AREA (NORTHERN HALF OF BUILDING 659)	FIGURE 1-3
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2. SITE CHARACTERIZATION

A site visit and historical records review was conducted by Jacobs the week of 9 October 1995. Although visible oil staining was observed at numerous floor locations within SWMU 33, there was no visible evidence that any uncontrolled release to environmental pathways had occurred as a result of the operations of this facility. According to review of available PCB spill records only small PCB spills which were quickly controlled occurred within the storage area. Cleanups were quickly performed and recorded in existing records. Copies of the available PCB records and surveys are included as Attachment 1 of this Site Characterization Report. Jacobs conducted the site characterization field activities from 3 to 14 June 1996.

2.1 SITE CHARACTERIZATION FIELD ACTIVITIES

Following are brief descriptions of each task performed by Jacobs during the project.

2.1.1 Project Plans/Procedures

During the initial phase of the project, Jacobs developed a Draft Work Plan to perform the assigned SOW tasks. Government review comments were incorporated into the Final Work Plan prior to initiating field activities (Jacobs 1996a&b). The Final Work Plan was submitted to USACE for distribution to EPA and UDEQ.

2.1.2 Mobilization

Once procedures and plans were finalized and approved, Jacobs mobilized the project team on site.

2.1.3 PCB Sample Collection

This section briefly summarizes the methods for PCB sample collection.

Grid Samples

Building 659 was divided into grids to identify sample locations. The proposed PCB sampling scheme was developed using the guidance presented in *Verification of PCB Spill Cleanup by*

Sampling and Analysis (EPA, 1985) and *Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup* (EPA, 1986).

Authoritative Samples

Based on the original site visit and historical records, authoritative (judgmental) sample locations were identified. At the time of this first visit not all floor areas were available for inspection. Prior to mobilization TEAD personnel removed the remaining transformers and drums on pallets. During mobilization for field activities Jacobs reinspected the PCB Storage Area for floor stains. A few authoritative samples were relocated to facilitate the site characterization. Grid and authoritative samples were composited per the requirements of the EPA guidance documents referenced above.

PCB Concrete Core and Wood Chip Sample Collection

Based on grid and authoritative sampling protocols, PCB concrete core samples were collected from the floors of the PCB Storage Area from areas with and without visible staining. PCB wood chip samples were collected from areas on the walls with and without visible staining. Appropriate QA core and chip samples were also collected.

Photographs

During sample collection, photographs were taken to support the sampling activities (Figures 2-1 through 2-4). When a photograph was taken, the date, time, subject, number of photograph, and the name of the person taking the photograph were recorded the field logbook. All photographs are part of the project file.

2.1.4 Repair

The holes created by the concrete core and wood chip sampling in the storage areas were patched and repaired.

2.1.5 Decontamination

All sampling equipment was decontaminated before each sample collection. All survey equipment was decontaminated after each use.

2.1.6 Demobilization

Once surveying and sampling were completed, Jacobs demobilized the on-site team.

2.1.7 Waste Handling/Disposal

Wastes generated during field activities were handled in accordance with the TEAD Investigation Derived Waste Plan, "Industrial Risk Management Policy Statement #94-EP-02."

2.2 Sampling Rational and Approach

The following discussion includes a description of the sampling scheme, location, and frequency of samples collected from SWMU 33.

2.2.1 Sampling Location and Frequency

The proposed PCB sampling and compositing scheme was developed using the guidance presented in *Verification of PCB Spill Cleanup by Sampling and Analysis* (EPA, 1985) *and Field manual for Grid Sampling of PCB Spill Sites to Verify Cleanup* (EPA, 1986). The PCB sample point locations were based upon a hexagonal grid sample design (EPA, 1995). This design allowed for the collection of representative samples of the site and greatly increased the chance of detecting any high levels of PCB contamination, if present. The hexagonal grid sampling design was centered on the PCB storage area (Figure 2-5).

In addition, based on the site visit and historical records search, authoritative (judgmental) sample locations were identified. Grid and authoritative samples were composited per the guidance documents referenced above.

The goal of the analysis effort is to determine whether at least one sample has a PCB concentration above the allowable limit. This may be determined by a strategy involving analysis of composite samples. The number of discrete samples that may be composited is determined on the basis of the established action level and the laboratory detection limit. For this project, the detection limit for PCBs in the concrete matrix was 0.05 mg/kg and the number of concrete floor samples to be composited was taken as ten, as shown in Table 2-1. If no PCBs are detected in a given composite sample, then the maximum possible value for any discrete component of the composite may be assumed to be 10x0.05 = 0.5 mg/kg, a value well below the applicable action levels summarized in Table 1-1.

Table 2-1 presents a summary of floor, wall, and QA/QC samples that were collected during the site characterization field activities.

Table 2-1
PCB Compositing and Discrete Sampling Schema

			Number of Analyses						
Group	#SXs/ Composite	Matrix	CS	Discrete	FD	MS/MD	QA	ER	Total
A	5	Wood wall	1	1	0	2	1	1	6
B	4	Wood wall	1	0	0	0	0	0	1
C	4	Wood wall	1	2	1	2	1	1	8
D	3	Brick wall	1	0	0	2	1	1	5
E	10	Concrete	1	2	1	2	1	1	8
F	10	Concrete	1	2	1	0	1	1	6
G	10	Concrete	1	2	1	2	1	0	7
	46 samples collected	**TOTALS**	7	9	4	10	6	5	41
								Waste Characterization	1
									42 samples analyzed

#SXs = number of samples
CS = composite
FD = field duplicate
MS/MD = matrix spike/ spike duplicate
QA = SPD Lab split sample
ER = equipment rinsate

2.2.2 Concrete Core and Masonry and Wood Chip Samples

To evaluate the potential for achieving clean closure based on the approved clean closure criteria, samples were collected and analyzed for PCBs from floor and wall locations following

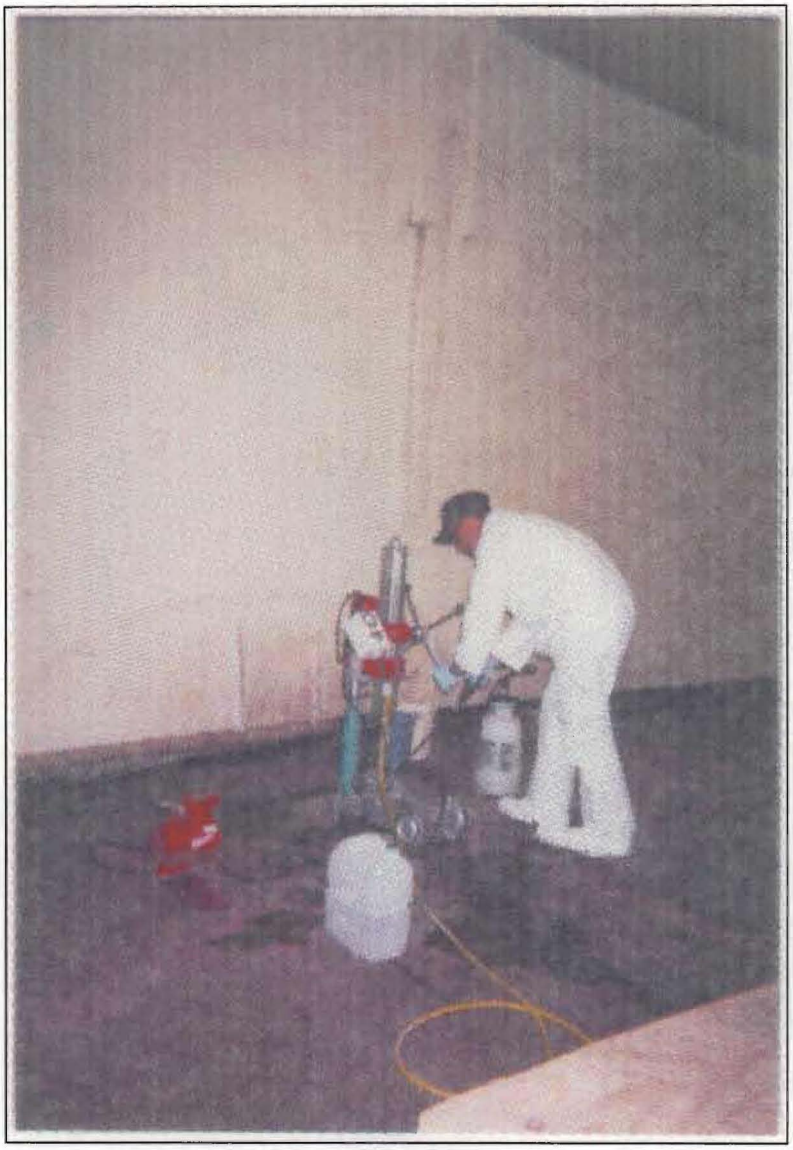

PHOTO 1. Typical Concrete Core Sample Being Cut.

JACOBS ENGINEERING

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Drawn by: sjr Project No. 27H10319

Date: 8/19/96

PHOTO NO. 1

TOOELE ARMY DEPOT
TOOELE, UTAH

FIGURE
2-1

PHOTO 2. Typical Concrete Core Sample Being Restored.

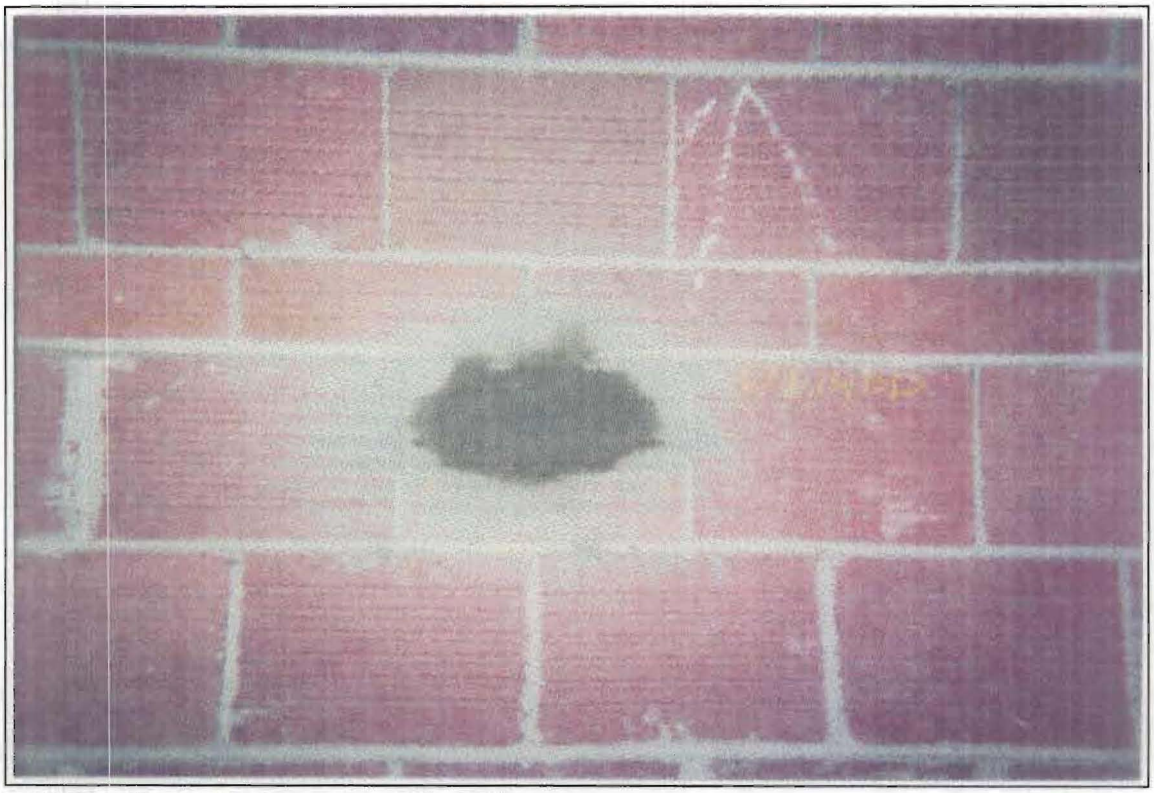

PHOTO 3. Completed Restoration of Fire Wall

JACOBS ENGINEERING

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Date: 8/19/96

PHOTO NO. 2 and 3

TOOELE ARMY DEPOT
TOOELE, UTAH

FIGURE
2-2

PHOTO 4. Wood Chip Sampling

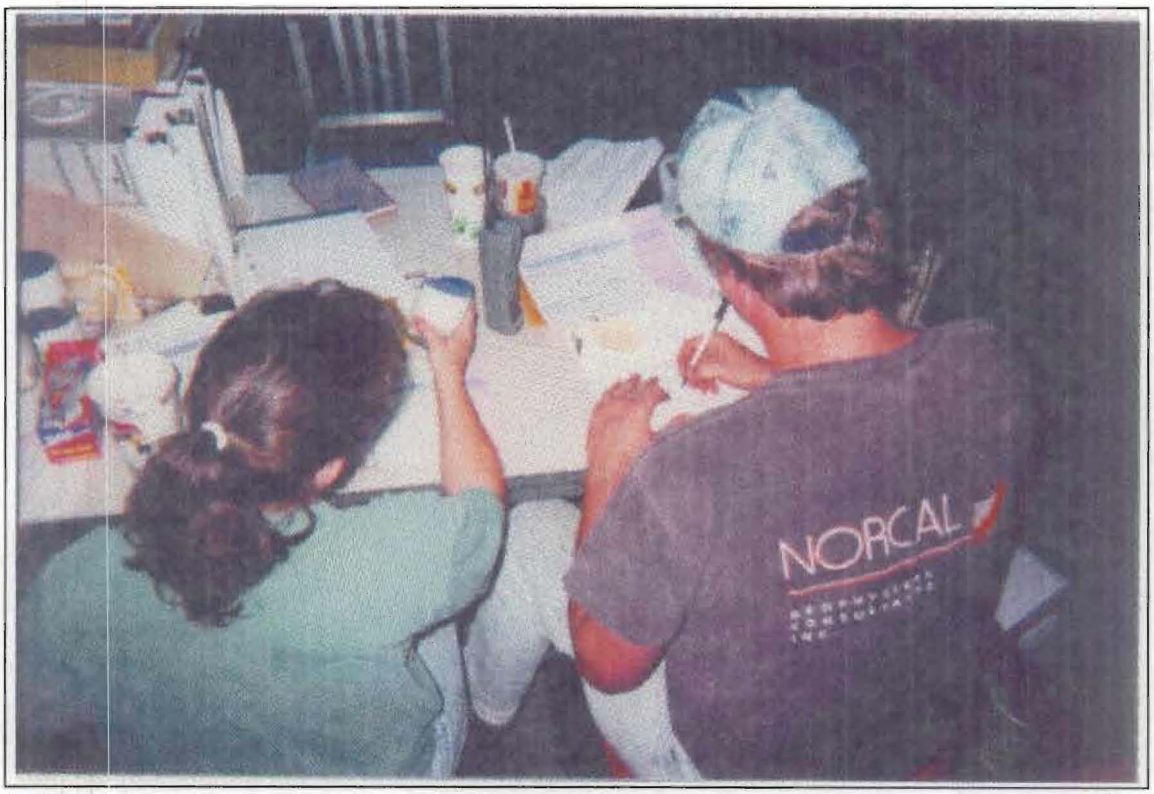

PHOTO 5. Final Check and Packaging for Shipment to Laboratories

JACOBS ENGINEERING

File: g:\cadd\27h10319\photos\photo3.fh3
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Date: 8/19/96

PHOTO NO. 4 and 5

TOOELE ARMY DEPOT
TOOELE, UTAH

FIGURE
2-3

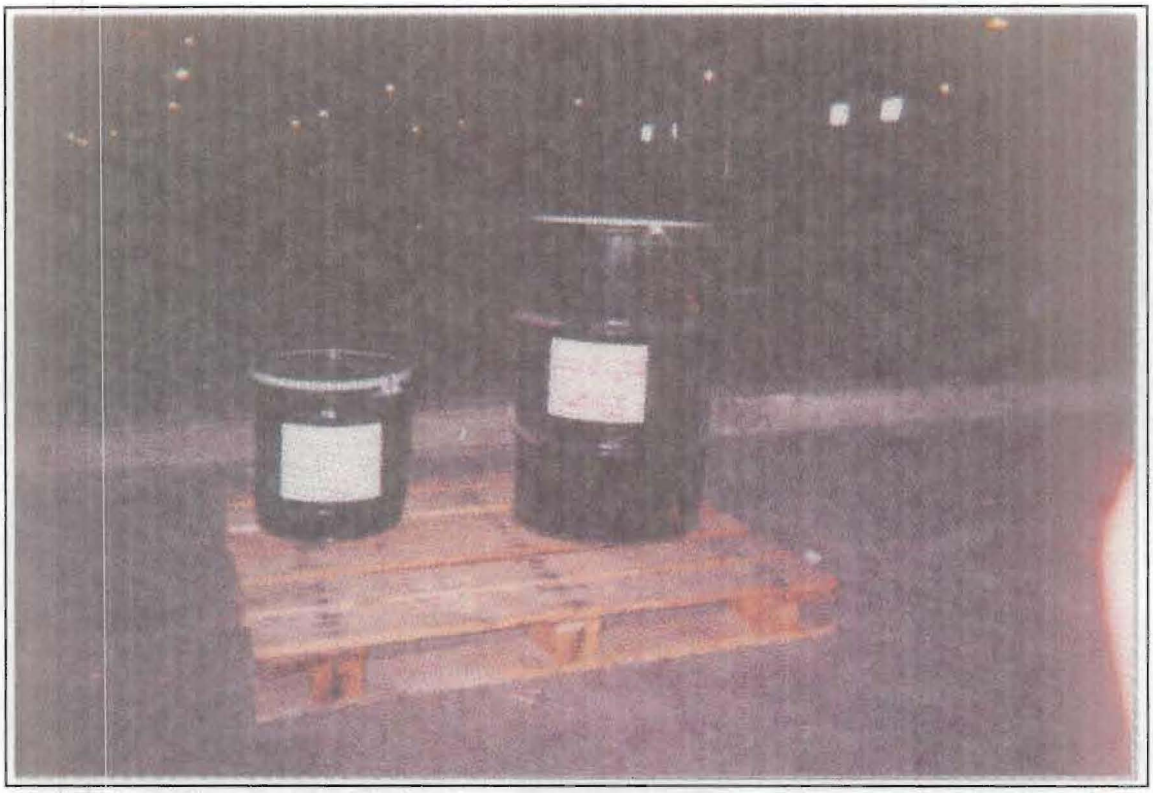
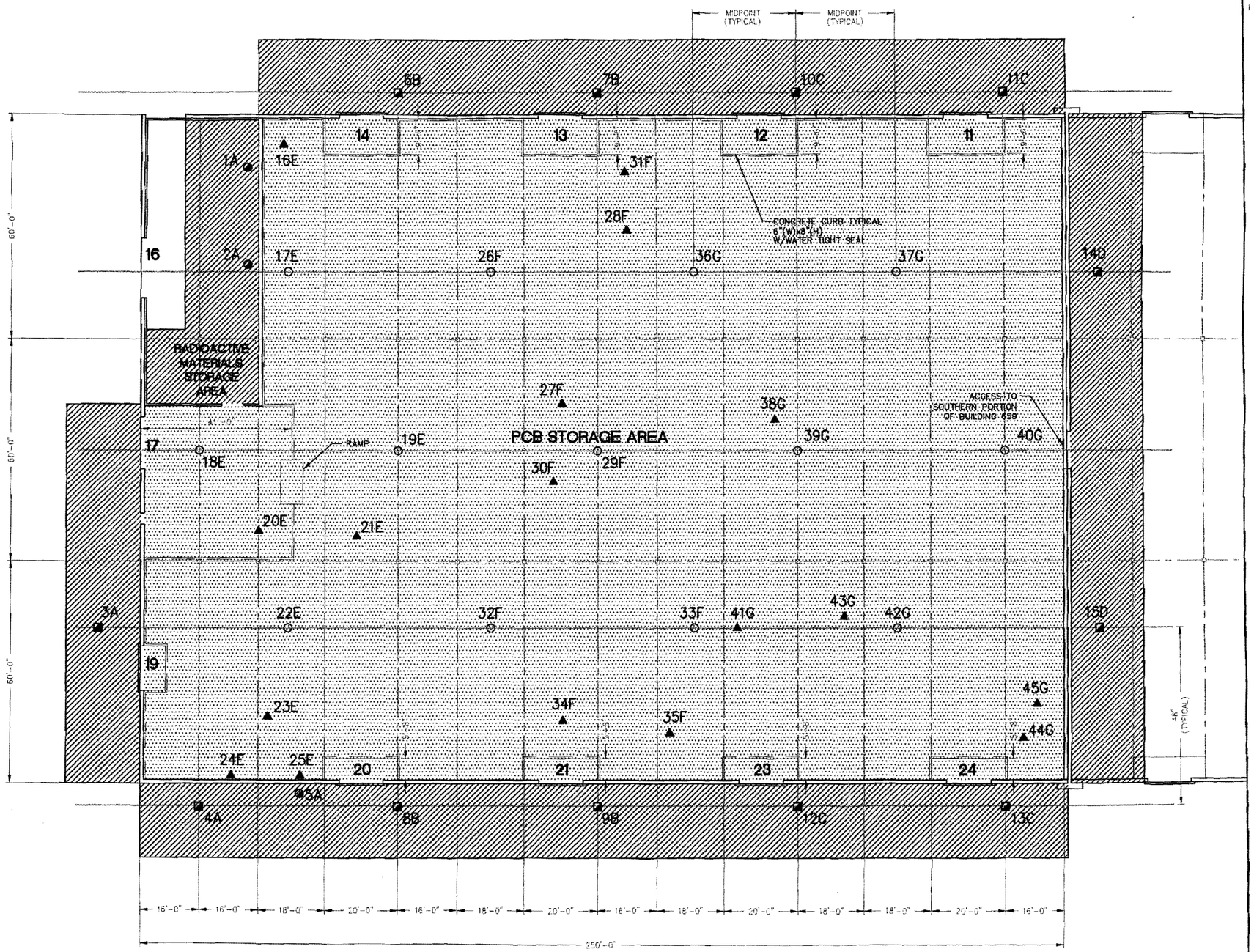
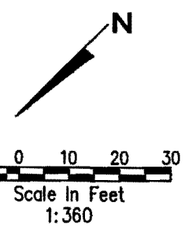


PHOTO 6. Final Containment of Project-Generated PCB Area Waste and Decontaminated Water.

JE® JACOBS ENGINEERING		**PHOTO NO. 6**	FIGURE
File: g:\cadd\27h10319\photos\photo4.fh3 Drawn by: sjr Project No. 27H10319	Date: 8/19/96	TOOELE ARMY DEPOT TOOELE, UTAH	2-4





LEGEND

- PCB Storage Area Floor Designation
- PCB Storage Area Wall Designation
- 14 Rollup Door Designation
- ▲ PCB Core Sample; Floor Location; Authoritative
- ◐ PCB Chip Sample; Wall Location; Authoritative
- ○ PCB Core Sample; Floor Location; Grid
- ◪ PCB Chip sample; Wall Location; Grid
- 23E Sample Number and Composite Sample Group

JE JACOBS ENGINEERING

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Drawn by: LA Project No. 27H10319

Date: 8/13/96

BUILDING 659 – PCB STORAGE AREA
PCB SAMPLING LOCATIONS

TOOELE ARMY DEPOT
TOOELE, UTAH

FIGURE
2-5

EPA guidance. Floor samples were collected by utilizing a concrete corer to remove a concrete core approximately one quarter-inch thick. Wall samples were collected both by using a chisel to remove wood chip samples approximately one quarter-inch thick and by using wipe sampling.

A total of 46 concrete core, masonry and wood chip samples were collected during the site characterization activities. Seven sample groups were composited for analytical testing by EPA Method 8080. Thirty concrete core floor samples were composited from three groups of 10 samples each. Thirteen wood chip wall samples were composited from three groups of five, four, and four samples. Three masonry chip wall samples were composited from one group of three samples. Individual samples were reserved for follow-up analysis in the event that composite sample analysis was not conclusive; therefore, seven discrete samples were required to properly evaluate potential facility contamination. In addition, four field duplicate, 10 matrix spike/matrix spike duplicate, six South Pacific Division Laboratory (SPDL) split, and five equipment rinsate samples were collected and analyzed by EPA Method 8080. Figure 2-5 presents the sample locations.

2.2.3 Wipe Samples

No impervious floors or walls were identified in the PCB Storage Area. Therefore, PCB wipe samples were not collected for analytical laboratory testing by EPA Method 8080.

2.3 Sampling Types

This section describes the types of samples collected for the site characterization activities.

2.3.1 Trip Blanks

Trip blanks are composed of purged deionized (DI) water added to a clean preserved volatile organic analyte (VOA) vial to detect potential cross contamination of VOCs during sample shipment. No samples were analyzed for VOCs during the investigation of SWMU 33; therefore, trip blanks were not used.

2.3.2 Quality Control (QC) Samples

QC samples are blind, collocated field duplicates submitted to the Contract Laboratory for the purpose of assessing field sampling precision. QC samples were collected as 10 percent of the total sampling effort. Generally, QC splits were collected for the first sample and every tenth sample thereafter. QC split samples were analyzed for the same parameters as the corresponding primary sample.

2.3.3 External Quality Assurance (QA) Samples

QA samples are field splits that are submitted to the QA laboratory, SPDL. QA samples were collected at a frequency of 10 percent for each matrix. Jacobs was responsible for the collection, labeling, packing, and shipping of QA samples to SPDL.

2.3.4 Rinsate Samples

One rinsate sample was collected for each day of solid material sampling and for each crew performing sampling during field operations.

2.3.5 Field Blanks

One field blank was obtained for each lot (5-gallon container, lot number, etc.) of water that is used for rinsing.

2.4 Field Documentation

Field activities were documented in a field logbook. A copy of the field log can be found in the Weekly Field and Laboratory Quality Control Report. (Refer to Attachment 2, Jacobs, 1996c). Following is a summary of the field documentation used during the work.

2.4.1 Sample Information Documentation

All information pertinent to the environmental samples, including specific collection data, names of sampling personnel, and laboratory observations were recorded in permanently bound notebooks. Sample identifications (IDs) were linked to the site where the sample originated.

For example, the fourth concrete core sample taken on the floor of the storage area would be designated as TEAD-659N-FL-04-C-PCB. CKY Laboratories, Inc. (CKY), the contract laboratory for this project, also employed a specific information management system to assist in tracking the progress of each sample through the analytical process.

2.4.2 Preparation of Field Logbooks

The field logbooks were bound with sequentially numbered pages and assigned to the sampler who was responsible for entry of information into that particular logbook. The field logbook was signed and dated by this person prior to initiation of field work. All entries into the field logbook were executed by this designated person. If it was necessary to transfer the field logbook to alternate personnel during the course of the work, the person relinquishing the field logbook signed and dated the field logbook at the time the field logbook was transferred. The person receiving the field logbook did the same to acknowledge transfer of field logbook custody.

Corrections to erroneous data were made by crossing a line through the entry and entering the correct information. Each correction was initialed and dated by the person making that correction. Unused portions of the field logbook pages were crossed out, signed, and dated at the end of each work day. All field logbook entries were legible, in ink, and contained accurate documentation. Language used was objective, factual, and free of personal opinions. Field logs became part of the project records and were delivered to the USACE Technical Manager (TM) at the end of the project (Jacobs 1996c)

2.5 Sampling and Equipment Procedures

All sampling activities were performed to protocols, specific to each parameter of interest, promulgated by the EPA, and by USACE as described in Appendix F of ER-1110-1-263, Sample Handling Protocol for Low, Medium, and High Concentration Samples and Hazardous Waste. Where such protocols have not been established by the EPA or the USACE, protocols established by some other recognized authority (e.g., American Society for Testing and Materials [ASTM], U.S. Nuclear Regulatory Commission [NRC], and TSCA) were used.

2.5.1 PCB Concrete Core, Masonry and Wood Chip Sample Collection Procedures

This section describes the procedures used to collect samples at SWMU 33.

Perform Building Inspection

Upon arriving at the PCB Storage Area, the sampling team evaluated site conditions to identify visible staining on floor and wall surfaces. The sampling team confirmed that the building was empty and currently not being used to store any types of transformers or petroleum products.

Delineate Sampling Grid

Upon completion of the site inspection, the PCB Storage Area floors and wall areas were divided into grids to identify sampling locations (both grid and authoritative).

Collect Concrete Core Samples

Using a concrete corer that had undergone the four-step decontamination process outlined below in Section 2.5.2, the concrete was cored to approximately one quarter-inch deep. Using a decontaminated stainless steel crowbar, the core sample was removed and placed into the proper glass container. The container was double bagged and placed into the sample cooler with ice to ensure a temperature of 4 degrees centigrade (°C). At that time all sample information was completed on the sample label, chain-of-custody (COC) form, and in the project field logbook.

Collect Masonry and Wood Chip Samples

Using a stainless steel chisel that had undergone the four-step decontamination process outlined below in Section 2.5.2, a piece of masonry or wood was chipped approximately one quarter inch-deep. The masonry or wood chip sample was placed into the proper glass container. The container was double bagged and placed into the sample cooler with ice to ensure a temperature of 4°C. At that time, all sample information was completed on the sample label, COC form and in the project field logbook.

2.5.2 Equipment Decontamination Procedures

In accordance with EPA Method SW-846 (EPA, 1992), the following procedure was followed for decontamination of stainless steel tongs, bowls, spoons, corer drill bits, and crowbars used to collect samples for PCB analysis:

- Detergent Wash: using a liquinox solution, the sampling equipment was scrubbed using a long-handled bristle brush.
- Tap Water Rinse: the sampling equipment was thoroughly rinsed with potable water.
- Methanol Rinse: the sampling equipment was thoroughly rinsed with a pesticide-grade methanol rinse. Residual methanol was collected in a container separate from decontamination water.
- Final Rinse: the final rinse was conducted using ASTM Type II Reagent Grade DI Water.

2.6 SAMPLE HANDLING PROCEDURES

This section discusses the procedures used after sample collection.

2.6.1 Sample Containers, Preservation, and Holding Time

Sample containers were provided by CKY. Containers arrived with a certification of purity that was maintained in project records. All samples submitted for analysis were labeled appropriately with location, time and date of sampling; whether discrete or composite; analysis to be performed; and sampler's signature.

The following is a summary of container preservation, and holding time requirements for each parameter.

Parameter	Container	Preservative	Holding Time (extraction)	Holding Time (extr. to analysis)
PCBs	8-oz. glass (solid/wipe) 1-L Amber Glass (liquid)*	Cool to 4°C Cool to 4°C	14 days 7 days	40 days 40 days

* for decontamination rinsate samples

2.6.2 Sample Transportation

Samples were shipped to CKY and SPDL via overnight courier. Samples were packaged and shipped in accordance with EPA, USACE, and U.S. Department of Transportation (DOT) regulations. The following procedure was followed for sample packing:

- Inspect and Tape Cooler: an inspection was performed of the shipping cooler to ensure that it was structurally sound for sample shipment. Duct tape was used to tape the drain spout shut to prevent any liquid from escaping during shipment.
- Line Cooler: bubble-wrap was used as a packing material. The bottom of the cooler was lined to prevent potential sample damage during shipment. A double liner of plastic bags inside the cooler was used to prevent any possible escape of liquid during shipment.
- Wrap Samples: each sample container was individually double bagged using a zip-lock style bag. Each sample container was wrapped in bubble wrap to prevent breakage.
- Bag Ice: ice was double-bagged using zip-lock style bags to prevent leakage.
- Pack Cooler: sample containers were alternated with layers of double-bagged ice to ensure that the temperature of the samples remains at 4°C during shipment. The plastic bags were closed and a signed custody seal placed around the bags. The COC form was placed in a sealed zip-lock style bag and taped to the inside of the cooler lid. The cooler was sealed using tape on both sides. Signed custody seals were placed on the front and sides of the cooler. "Fragile" and "This Side Up" stickers were placed on the cooler. The air bill was affixed to the top of the cooler.

2.6.3 Chain-of-Custody Procedures

Samples were collected, transported, and received under strict COC protocols consistent with procedures established by the EPA. Upon receiving the sample shipment, CKY recorded the temperature of the air inside the cooler and of the temperature blank. The results were recorded on the cooler receipt form. Copies of completed COC forms were provided to the USACE TM upon completion of sampling activities (Jacobs 1996c). Cooler receipt forms were used to document the conditions upon receipt by CKY. The results of all checks for preservation of samples were recorded on the cooler receipt form.

2.7 Investigation-Derived Waste

This section outlines the procedures used for proper collection, containerization, characterization, transport, and disposal of investigation-derived waste (IDW) at Building 659 at TEAD. IDW is defined here as "waste generated during the course of the environmental investigation that had the potential for being hazardous and thus required special handling."

Wastes generated during field activities were handled in accordance with TEAD's Industrial Risk Management Policy Statement #94-EP-02 (TEAD 1993).

2.7.1 Concrete Core, Masonry, and Wood Chips/Dust

Wastes in the form of unused samples and concrete cores and masonry/wood chips/dust were generated during sampling. Contaminant concentrations were determined by analytical laboratory results. This waste was containerized per Section 2.6.4.

2.7.2 Decontamination Rinsate

Liquid wastewater generated during decontamination of PCB field equipment was collected and containerized in a single drum. Attempts were made to minimize the amount of liquid used in the decontamination. Fluids from decontamination of personnel and sampling equipment were placed in appropriate 5-gallon, DOT-approved drums. If residual PCB concentrations in rinsate solution was 2.0 ppm or more, the solutions would be disposed at an appropriately regulated facility.

2.7.3 Disposable PPE

PPE classified as waste included disposable suits, gloves, boots, and plastic sheeting. The daily amount of PPE waste generated was minimal, and the total waste generated for this phase fit into one 5-gallon drum. The drum was closed at the end of each work day and sealed upon completion of the sampling task. The drum was placed in a staging area within the Building 659 PCB Storage Area and appropriately labeled.

2.7.4 Liquid Waste Containers

Liquid wastes were containerized in DOT-approved, steel, closed-head, 5-gallon drums with standard bungs. Before use, each drum was inspected for physical integrity.

2.7.5 Labeling of Containers

A drum label was immediately attached to any drum containing waste material. The drum was stored on end with the label placed on the side of the drum in the upper third section (not on the

drum head). The label was filled out using waterproof ink. Waste material labels were used before receiving the results of the analytical samples used to characterize the drums contents. If analytical results characterized the drums contents as hazardous, the waste material label was replaced by a hazardous waste label.

2.7.6 On-Site Container Storage

Drums were stored in an on-site area designated by TEAD Environmental Management for waste storage. The waste storage area was located where containers were safe from vehicular traffic.

2.7.7 Waste Characterization

A liquid waste sample was collected from the decontamination water during the site investigation and used to characterize the containerized waste.

2.7.8 Waste Handling and Disposal

TEAD was the waste generator for this work. Liquid waste was turned over to Defense Reutiliztion and Marketing (DRMO) for proper disposal. Solid wastes characterized as noncontaminated were disposed on site in approved dumpsters.

2.7.9 IDW Reporting

Per TEAD's Industrial Risk Management Policy Statement #EMD-01, Jacobs turned in liquid waste (< 5 gallons) to DRMO. The liquid waste sample was documented with PCB concentrations less than the reporting limit (3 µg/L). The analytical report and COC are found in Attachment 3.

2.8 Quality Control for Field Operations

Jacobs implemented a USACE three-phase control system during field operations. This system is described in detail in the QAPP (Jacobs 1996a). In general, the three-phase control involves a preparatory phase prior to initiating any field work, an initial phase at the start of field

work, and a follow-up phase through completion of the field work. All field activities complied with the three-phase control procedures.

Meeting minutes taken during the preparatory phase, initial phase, and a follow up phase meetings can be found in the Weekly Field and Laboratory QC Report. (Refer to Attachment 2, Jacobs 1996c).

3. SITE CHARACTERIZATION RESULTS

3.1 ANALYTICAL LABORATORY RESULTS

The contract laboratory for this field effort was CKY Laboratories, Inc., now called EMAX, in Torrance, CA. The quality assurance laboratory was South Pacific Division Laboratory (SPDL), Sausalito, CA.

3.1.1 Compositing Scheme

Samples collected from concrete flooring and wood and masonry walls were composited into seven groups, A through G, and analyzed for PCBs by EPA SW846 method 8080. The compositing and discrete sampling schema is shown in Table 2-1.

Collocated field duplicates were generally selected from stained floor or wall areas and analyzed as discrete samples. These field duplicates were split and the split portions sent to SPDL for analysis as QA samples.

A portion of each of the concrete core and wood chip samples that underwent compositing was reserved in the event that subsequent analysis might be required. In order to guard against missed extraction holding times, CKY was instructed to extract each of the 46 discrete samples and to hold the extract for possible further analysis.

The six QA splits were scheduled to be linked with six pairs of field duplicates. However insufficient sample prevented the analysis of one of the wood wall discretes; CKY neglected to analyze the discrete masonry field duplicate designated on the chain of custody. In the latter case, the Group D composite, consisting of only three samples, was found to be free of detectable PCB contamination; therefore, further analysis of Group D discretes was not requested. These deviations reduced the number of replicate sample comparisons to four pairs of collocated field duplicate results and five pairs of split sample results.

3.1.2 Qualitative Identifications

A number of detected results were reported by CKY and SPDL. The chromatograms were indicative of degraded PCB fractions. Due to the degraded condition of these materials, the qualitative identifications and quantitative results must be qualified as estimated values. CKY reported detections of Aroclors 1016, 1254 and 1260, while SPDL laboratory reported Aroclors 1242, 1254 and 1260 in various samples. The results are summarized in Table 3-1.

3.1.3 Analytical Results: Concrete Floor

The highest levels of PCBs were found in the concrete floor samples of composite groups E, F and G. Although Aroclor 1260 was the most frequently detected PCB, the highest single result (6.3 mg/kg) was a detection of Aroclor 1254 in the QA split from composite group E. Aroclor 1260 was found at a level of 2.59 mg/kg in a discrete sample in composite group F. The highest result for a composite sample was 0.36 mg/kg for Aroclor 1254 from group E.

3.1.4 Analytical Results: Masonry/Wood Walls

No PCBs were detected in composite groups A (wood wall), B (wood wall) or D (masonry wall) or in the associated discrete field duplicates or QA samples. Aroclor 1260 was the predominant PCB detected in discrete and composite samples from within Group C (wood wall). Total PCBs detected in samples taken from within Group C varied from 0.12 mg/kg in the field duplicate to 0.55 mg/kg in the QA split sample.

3.1.5 QA/QC

The results of the data quality assessment described in Section 4 are summarized here. CKY provided complete data packages for all analyses. These were reviewed in depth; the quality of laboratory analysis was found generally satisfactory. No holding times for extraction or analysis were missed. No contamination was found in the method blanks. A number of surrogate recoveries were below acceptance limits but all were greater than 10 percent. Four of 12 matrix spike/matrix spike duplicate recoveries from these nonstandard matrices were below acceptance limits established for soil samples. Reanalysis confirmed that these were due to matrix effects. All laboratory control sample recoveries were within limits.

A comparison of field duplicate and QA split sample results is provided in Table 3-1. Although the overall pattern of results for these discrete samples is consistent with that for composite analysis, the agreement between collocated pairs of field duplicates and between split samples collected from concrete flooring is erratic. Group E field duplicate results were nondetected while the QA split sample gave a result for Aroclor 1254 of 6.3 mg/kg. Group F split sample results (0.29, 0.42 mg/kg) were in agreement but the field duplicate results differed by nearly a factor of 10 (2.59, 0.29 mg/kg). These inconsistencies suggest that (1) split samples needed to be more completely homogenized in the field; and (2) PCB contamination is unevenly distributed in small pockets within the concrete matrix.

3.2 COMPARISON OF FINDINGS WITH RELEASE CRITERIA

The requirements for PCB spill cleanup are summarized in Table 1-1. As presented in the approved Final Work Plan (Jacobs 1996a), the clean closure criterion proposed for the PCB Storage Area is 25 mg/kg. Reference to Table 1-1 indicates that this value corresponds to the EPA criterion established for soil, a non-impervious medium, in areas of restricted use. The results of the analysis of wood, masonry and concrete core samples summarized in Table 3-1 show that the 25 mg/kg criterion was not exceeded. In addition, the results show that the 10 mg/kg criterion was not exceeded for a non-impervious medium, in areas of nonrestricted use. The highest concentrations of total PCBs in discrete samples were 7.1 mg/kg (sample ID FP-CC-25DD) from Area E and 2.59 mg/kg (sample ID FP-CC-29D) from area F. No other results for either composite or discrete samples exceeded 0.55 mg/kg.

Table 3-1
Summary of Results of PCB Analysis

			Results (mg/kg)					
Sample ID	QC Code	Matrix	1016	1242	1254	1260	Totals	RL
Composite Group A (5)	CS	WC	ND	ND	ND	ND	ND	0.054
WP-SR-01	N	WC	NA	NA	NA	NA	NA	N/A
WP-SR-02	N	WC						
WP-SR-03	N	WC						
WP-SR-04	N	WC						
WP-SR-05	N	WC						
WP-SR-01D	FD	WC	ND	ND	ND	ND	ND	0.054
WP-SR-01 DD	QA	WC	ND	ND	ND	ND	ND	0.017
Composite Group B (4)	CS	WC	ND	ND	ND	ND	ND	0.053
WP-SR-06	N	WC						
WP-SR-07	N	WC						
WP-SR-08	N	WC						
WP-SR-09	N	WC						
Composite Group C (4)	CS	WC	0.17	ND	ND	0.16	0.33	0.054
WP-SR-10	N	WC	ND	ND	ND	0.23	0.23	0.050
WP-SR-11	N	WC						
WP-SR-12	N	WC						
WP-SR-13	N	WC						
WP-SR-10D	FD	WC	ND	ND	ND	0.12	012	0.054
WP-SR-10 DD	QA	WC	ND	0.13	0.10	0.32	0.55	0.017
Composite Group D (3)	CS	BC	ND	ND	ND	ND	ND	0.050
WP-BC-14	N	BC	NA	NA	NA	NA	NA	N/A
WP-BC-15	N	BC						
WP-BC-14D	FD	BC	NA	NA	NA	NA	NA	N/A
WP-BC-14DD	QA	BC	ND	ND	ND	ND	ND	0.016
Composite Group E (10)	CS	CC	ND	ND	0.36	ND	0.36	0.051
FP-CC-16	N	CC						
FP-CC-17	N	CC						
FP-CC-18	N	CC						
FP-CC-19	N	CC						
FP-CC-20	N	CC						
FP-CC-21	N	CC						
FP-CC-22	N	CC						
FP-CC-23	N	CC						
FP-CC-24	N	CC						
FP-CC-25	N	CC	ND	ND	ND	ND	ND	0.050
FP-CC-25D	FD	CC	ND	ND	ND	ND	ND	0.051
FP-CC-25DD	QA	CC	ND	ND	6.3	0.84	7.14	0.82

Table 3-1 (Continued)
Summary of Results of PCB Analysis

				Results (mg/kg)				
Sample ID	QC Code	Matrix	1016	1242	1254	1260	Totals	RL
Composite Group F (10)	CS	CC	ND	ND	ND	0.25	0.25	0.051
FP-CC-26	N	CC						
FP-CC-27	N	CC						
FP-CC-28	N	CC						
FP-CC-29	N	CC	ND	ND	ND	2.59	2.59	0.050
FP-CC-30	N	CC						
FP-CC-31	N	CC						
FP-CC-32	N	CC						
FP-CC-33	N	CC						
FP-CC-34	N	CC						
FP-CC-35	N	CC						
FP-CC-29D	FD	CC	ND	ND	ND	0.29	0.29	0.051
FP-CC-29DD	QA	CC	ND	0.11	0.16	0.15	0.42	0.016
Composite Group G (10)	CS	CC	ND	ND	ND	0.20	0.20	0.051
FP-CC-36	N	CC						
FP-CC-37	N	CC						
FP-CC-38	N	CC						
FP-CC-39	N	CC						
FP-CC-40	N	CC						
FP-CC-41	N	CC						
FP-CC-42	N	CC						
FP-CC-43	N	CC						
FP-CC-44	N	CC	ND	ND	ND	ND	ND	0.050
FP-CC-45	N	CC						
FP-CC-44D	FD	CC	ND	ND	ND	0.064	0.064	0.051
FP-CC-44DD	QA	CC	ND	0.11	0.054	0.057	0.221	0.016

Key:
WP = wall
FP = floor
WC = wood chips
BC = brick
CC = concrete
ND = not detected
NA = not analyzed (insufficient sample)
N/A = not applicable
RL = reporting detection limit

CS = composite
N = normal sample
FD = field duplicate
QA = QA split sample

Integer in parentheses = number of discrete samples per composite
Detected results are shaded
1016, 1242, 1254, 1260 = aroclor PCB designations (1221, 1232, 1248 were not detected in any sample)

4. DATA QUALITY ASSESSMENT AND CONCLUSIONS

4.1 DATA QUALITY ASSESSMENT

Samples were collected from wall and floor locations and analyzed as composite and discrete samples as indicated in Table 2-1. Four pairs of field duplicates were analyzed. Field quality control samples included five equipment rinsates. Another six QA split samples (discretes) were submitted to SPDL, Sausalito, CA, for confirmatory analysis.

Laboratory analytical data received from CKY, Torrance, CA, (now called EMAX) were subjected to a process of verification that included completeness checks and review and evaluation of field and laboratory QC results. Extended data packages including verifiable raw data and instrument logs are included as Attachment 3. Results from another QA laboratory, Curtis and Tompkins, Berkeley, CA, subcontract laboratory to SPDL, were also received. These are included in Attachment 3 following the CKY package.

Analysis was performed according to EPA SW846 method 8080 using a gas chromatograph equipped with dual capillary columns and dual electron-capture detectors configured to permit simultaneous second-column confirmation. In the case of analysis for PCBs only, a DB1701 bonded-phase capillary column was employed; pattern recognition served as the means of qualitative identification. Quantitation was performed by measuring the areas of four principal peaks associated with a particular Aroclor mixture.

4.1.1 Holding Times

All samples were extracted and analyzed within allowable holding times except for two matrix spike/spike duplicate pairs which were reanalyzed due to low recoveries. The reanalyses confirmed that a matrix interference was responsible for the low recoveries.

4.1.2 Method Blanks

Method blanks were performed at the required frequency. All were free of contamination.

4.1.3 Matrix Spike/Matrix Spike Duplicate Recoveries

Composite Groups A, C, D, E and G were spiked in duplicate with Aroclor 1260. The results of matrix spike/matrix spike duplicate (MS/MSD) sample recoveries are summarized in Table 4-1.

Table 4-1
Summary of Matrix Spike Recoveries

Composite Group	MS, %R	MSD, %R	RPD	Control Limits	
				MS, %R	RPD
A	64	83	25*		
C	52*	63	19		
D	94	100	6	55-145	< 20
E	121	133	10		
G	47*	55	15		

* These MS/MSD % recoveries and RPD were outside control limits
MS = matrix spike
MSD = matrix spike duplicate
RPD = relative percent difference

4.1.4 Laboratory Control Samples

Laboratory Control Samples were run at the required frequencies. All recoveries were within acceptance limits of 50-150 percent.

4.1.5 Surrogate Recoveries

Two surrogates were used, tetrachloro-1,3-xylene (TCX) and decachlorobiphenyl (DCB). A number of recoveries were outside the acceptance limits of 50-150 percent, especially in connection with the analysis of concrete samples. Reanalysis confirmed that low recoveries were the result of matrix interferences. These results are summarized by matrix in Table 4-2.

Table 4-2
Summary of Surrogate Recovery Results*

		TCX, %R		DCB, %R		TCX,	DCB,
Matrix	# Analysis	Max	Min	Max	Min	% Acceptable	% Acceptable
Wood	8	117	73	107	24	100	88
Brick	1	84	84	81	81	100	100
Concrete	12	140	56	78	18	100	17
Water	5	81	68	73	41	100	80

* Includes analyses and reanalyses of discrete and composited samples

4.1.6 Instrument Performance and Calibration

An initial five-point calibration was performed on a mixture of Aroclors 1016 and 1260. The relative standard deviations were less than 20 percent. A subsequent five-point calibration was performed for Aroclor 1254; again, the relative standard deviation was in compliance. Continuing calibration verifications were performed with each daily analytical batch. All continuing calibrations were within acceptance limits.

4.1.7 Equipment Rinsates

One equipment rinsate consisting of the final rinse of the sampling equipment decontamination process was collected at the end of each day of PCB sampling activity and submitted for laboratory analysis. PCBs were not detected. All surrogate recoveries except one were in control (see Table 4-2).

4.1.8 Field Duplicates and QA Split Samples

The results are compared in Table 3-1. Field duplicates mainly provide a measure of field sampling precision while the QA split samples provide an indication of qualitative and quantitative laboratory accuracy. Examined as a whole, the results confirm the presence of PCB contamination at one wall area and all three concrete floor areas. However, a detailed review indicates several disagreements.

The results of field duplicates taken from areas C, E and F are in qualitative agreement. One of the field duplicate pair collected from area G gave a nondetected result while the other analyzed for a trace amount of Aroclor 1260. The detected results for the pair from area F differ by a factor of nine. These discrepancies are attributable to the heterogeneous nature of the matrix, particularly concrete.

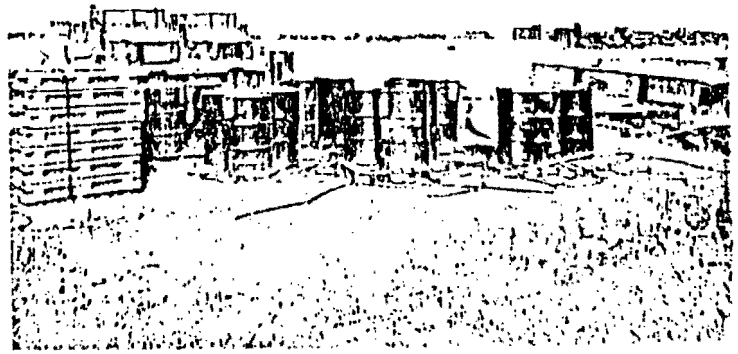
Better agreement is observed between the field duplicate/QA split sample pair except in the case of the area E sample. The primary laboratory reported an absence of detectable PCBs in the field duplicate discrete while the QA laboratory gave a result that was 20-times greater than that for the area E composite sample. Both laboratories identified the PCB as Aroclor 1254. The result found by the QA laboratory, 7.1 mg/kg, the highest value reported for any sample, is below the nonimpervious standard (based on soil) of 25 mg/kg for restricted and 10 mg/kg for nonrestricted use.

4.1.9 Overall Data Quality Assessment

Although a number of surrogate recoveries and matrix spike recoveries were out of compliance with control limits based on the analysis of clean soil samples, reanalysis was performed to demonstrate that these deviations were the result of matrix effects. Recoveries of the late-eluting surrogate, DCB, in concrete samples were typically below project-specified acceptance limits. These low recoveries were attributable to matrix interferences and not necessarily indicative of poor extraction efficiency. The quality of the data suffices to establish the presence of PCB contamination within the matrix of the concrete floor and within one wall area.

4.2 Conclusions

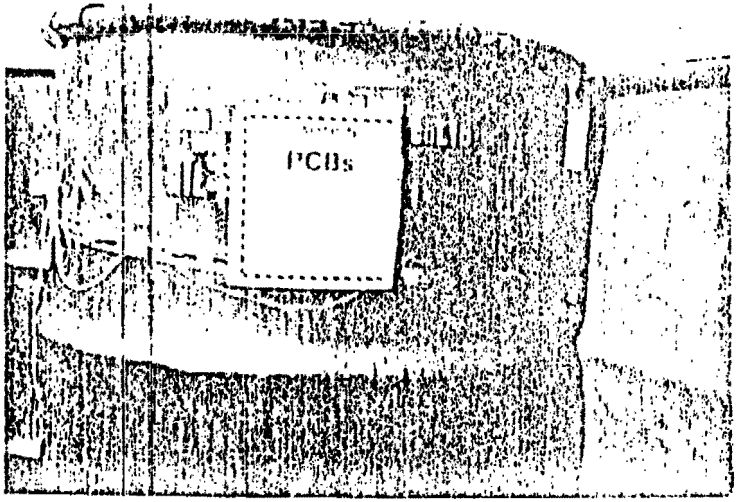
Tooele Army Depot has documentation for the numbers and types of transformers that have been stored in the Building 659 PCB Storage Area (Attachment 1). According to available documents, all types of transformers were previously stored at this site: (1) non-PCB transformers (0-50 ppm), (2) PCB-contaminated transformers (50-500 ppm), and (3) PCB transformers (> 500 ppm). In addition, in response to a PCB spill reported on the outside of Building 659, 55-gallon drums of soil contaminated with PCB were stored in the Building 659 PCB Storage Area.



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: (18) 55-gallon drums containing PCB oil
Location: U.S. Army Depot
Tooele County: Tooele State Utah
Date: 10-21-80 Time: 10:30 AM
Photographer: Rod W. Gleave
Film: Polaroid ASA:
Location of Negative:
File: #
Witness: Kris Mullen
Process:
Paper:

6



OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: PCB Pallet on 55-gallon drum containing contaminated soil
Location: U.S. Army Depot
Tooele County: Tooele State Utah
Date: 10-21-80 Time: 10:30 AM
Photographer: Rod W. Gleave
Film: Polaroid ASA:
Location of Negative:
File: #
Witness: Kris Mullen
Process:
Paper:

Transformer oil spills have been documented at the PCB Storage Area. Appropriate reporting and decontamination have been performed accordingly to TEAD's "Handling of Items Containing Possible Concentrations of Polychlorinated Biphenyls (PCB's) in Building 659" Operating Procedure Number 7800.14. Analytical results have indicated that the transformer oil spilled from non-PCB transformers (0-50 ppm). There are no records available for transformer oil spilled from PCB-contaminated transformers (50-500 ppm) or PCB transformers (> 500 ppm).

The site characterization field activities conducted in the first two weeks of June 1996 provided additional information as to the presence or absence of PCBs on the floors and walls of the PCB Storage Area. In all composite or discrete samples (concrete, wood and masonry), the maximum PCB concentration was 7.1 mg/kg, which is below the non-impervious standards (based on soil) for restricted (25 mg/kg) and nonrestricted (10 mg/kg) use. Analytical results support a no removal action for these low-level contaminated non-impervious materials. However, now that the presence of PCBs is established, the solid surface PCB standards must be addressed.

The Building 659 PCB Storage Area site characterization indicates PCB contamination on the concrete floors and wood walls. This PCB contamination requires removal prior to release for nonrestricted use. Requirements for decontaminating spills in nonrestricted areas can be accomplished by a double-wash/rinse method (40CFR761.123). Therefore, all concrete floor areas within the storage area boundaries should be decontaminated prior to testing for closure status. In addition, PCB oil stains were detected on the walls as reported in wood chip samples (Composite Group C). These stains should be decontaminated prior to testing for closure status. Target decontamination concentration levels for nonrestricted use areas are 10 µg/100 cm^2 per the standard wipe test (40CFR761.123).

5. REFERENCES

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Jacobs Engineering Group 1996b. *Site Survey Workplan for Confirmation Sampling and Surveying for Closure of Building 659 PCB and Radiological Storage Areas. Volume II - Part D: Health and Safety Plan.* Prepared for U.S. Army Corps or Engineers, Contract No. DACA 05-92-D-0040. 28 May.

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U.S. Army Environmental Center. 1994. *Tooele Army Depot—North Area, Record of Decision for Operable Units 5, 6, 7, and 10.*

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U.S. Environmental Protection Agency (EPA). 1986. *Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup.* Office of Toxic Substances. Washington, DC: EPA/560/5-86-017. May.

U.S. Environmental Protection Agency (EPA). 1985. *Verification of PCB Spill Cleanup by Sampling and Analysis.* Office of Toxic Substances. Washington, DC: EPA/560/5-85-026. August.

U.S. Environmental Protection Agency (EPA), Utah Department of Environmental Quality (UDEQ), U.S. Department of the Army. 1991. "Federal Facility Agreement Under CERCLA Section 120, Tooele Army Depot, North Area."

Attachment 1

Historical Records Search

December 3, 1980

PCB Inspection
Army Depot - Tooele, UT

8AH-TS

Robert W. Harding, Chief
Field Operations Section

On 10/31/80, at 9:00 a.m., Kris Mullen and I went to the U.S. Army Depot in Tooele, Utah to inspect two PCB electrical transformers which were punctured by a fork lift while being crated to be moved from outside storage to inside storage on the base. We also wanted to check on the clean-up procedures used after the incident.

We showed our EPA credentials to Mr. Ray Johnson, director of the Engineering and Environmental Control Branch, and to Mr. Larry Fisher, environmental coordinator. I issued a TSCA Notice of Inspection and an Inspection Confidentiality Notice to Mr. Fisher. I mailed a copy of the TSCA Inspection Confidentiality Notice to the Depot Commander, Jerry Patterson. I issued a Receipt for Samples to Mr. Fisher for a copy of the PCB spill histroy file and photos of the PCB spill site.

According to Mr. Johnson and Mr. Fisher, the spill occurred on 9/12/80, as transformers were being recrated for transfer from outside storage to indoor storage. A fork lift punctured the transformers and the oil leaked out onto the ground.

The dept was built in 1942 as a temporary facility. It covers several square miles and has 4,000 employees. The operation is an equipment rebuilder and supplier for the U.S. ARmy.

We found that a list of each transformer's serial number and contents (PCB oil, non-PCB oil, etc.) is being completed. The transformers that contain PCB are being properly marked. Transformers with no indication of PCB on the manufacturer's label are treated as PCB transformers until oil samples are analyzed. The Aberdeen Proving Ground Lab in Maryland is conducting the sample analyses.

All out-of-service transformers are stored in Building 659 which has a new roof and a concrete berm installed around the edge of the concrete floor. The 440 55-gallon drums of contaminated soil from the 99/12/80 spill will also be stored in the building. The building does not have any windows and is kept locked.

Additional 55-gallon drums are being acquired for the small amount of contaminated soil left to clean up. Labeling of PCB contaminated transformers is being done as lab analyses are received. Drums of contaminated soil will be moved into storage at Building 659, along with the 18 drums of PCB oil drained from the leaking transformers.

Rod W. Glebe

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Attachments:
1. Notice of Inspection
2. Notice of Confidentiality
3. Receipt for Samples
4. Depot Spill Report
5. Photos

8AH-TS:GLEBE:ml:12/3/80

bcc: Mullen

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Appendix II

U.S. Environmental Protection Agency
NOTICE OF INSPECTION
UNDER THE TOXIC SUBSTANCES CONTROL ACT

Name of Firm: Tooele US Army Depot
Firm Address: Tooele Utah 84074

Date Inspection Commenced: 10-31-90
Hour: 10 AM
EPA Regional Office Address: (type)
Pesticides and Hazardous Materials
1860 Lincoln St
Denver, Colo. 80295

Reason for Inspection:

☒ For the purpose of inspecting (including taking samples, photographs and other inspection activities) an establishment, facility, or other premises in which chemical substances or mixtures or articles containing same are manufactured, processed or stored, or held before or after their distribution in commerce (including records, files, papers, processes, controls, and facilities) bearing on whether the requirements of the Act applicable to the chemical substances, mixtures or articles within or associated with such premises have been complied with.

☐ For the purpose of inspecting (including taking samples, photographs and other inspection activities) a conveyance being used to transport chemical substances, mixtures, or articles containing same in connection with their distribution in commerce (including records, files, papers, processes, controls and facilities) bearing on whether the requirements of the Act applicable to the chemical substances, mixtures or articles within or associated with the conveyance have been complied with.

☐ In addition, this inspection extends to (circle appropriate letters):
A) Financial data
B) Sales data
C) Pricing data
D) Personnel data
E) Research data
The nature and extent of inspection of such data specified in A through E above is as follows:

Name of Person to Whom Notice of Inspection Was Given:
Larry Fisher
Environmental Coordinator
TITLE

Signature of EPA Employee:
Richard W. Hecker DATE 10-31-90
C.S.O.
TITLE

Distribution: one copy Plant Manager
one copy PCB Violation Coordinator
one copy Inspector's Files

PCB INSPECTION CONFIDENTIALITY NOTICE

United States Environmental Protection Agency

Regional Address: 1860 Lincoln
Denver Colo 80295

Facility Inspected: Tooele Depot

Date Inspected: 10-31-85

Address of Facility: Tooele USArmy
Depot
Tooele Utah 84074

Name of person at the facility to whom this notice given:
Larry Fisher
Environmental Coordinator
TITLE

Name of chief officer of business: COL Jerry Patterson
Commander

Date mailed to chief officer:

Name of EPA Inspector: Rod Wiebe

Address: E.P.A. A&M-P
1860 Lincoln
Denver, Colo. 80295

It is possible that EPA will receive public requests for release of the information obtained by inspectors during inspection of the facility indicated above. Such requests will be handled by EPA in accordance with provisions of the Freedom of Information Act (FOIA), 5 U.S.C. 552, EPA regulations issued thereunder, 40 CFR Part 2, and the Toxic Substances Control Act Section 14. EPA is required to make inspection data available in response to FOIA requests unless the Administrator of the agency determines that the data contains information entitled to confidential treatment.

In order to facilitate the Agency's timely response to any public inquiries, while giving due consideration to your company's right to request confidentiality, please provide us with a statement specifying any information which our inspection of the above indicated facility may reveal which you believe should be entitled to confidential treatment.

Your statement should be addressed to Karen Passavanti-Cross (RESPONSIBLE EPA OFFICIAL) and should reach this address no later than 30 days after your receipt of this notice. Failure by your firm to submit, within the 30 day time period, a written request that information be characterized as confidential or privileged will be treated by EPA as a waiver by your company of any claims for confidentiality regarding the inspection data and the data will be made available to the public without further notice to you.

10-31-85
Date received by Owner/Operator

Signature of Plant Manager

Distribution: one copy Plant Manager
one copy Chief Officer of Business
one copy PCB Violation Coordinator
one copy Inspector's Files

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Appendix V

U.S. Environmental Protection Agency

Receipt for Samples

Regional Address:

Environmental Protection Agency
Region VIII
1860 Lincoln St., Suite 103
Denver, CO 80295

Name of Plant Manager or Similar Official: Larry Fisher

Firm Name: US Army Depot

Firm Address: Tooele, Utah 84074

Sample Numbers: RG 801031-1 thru 5

Samples Collected: (Describe fully the time, place, date and type of sample, number of containers for each type of sample)

4 photos of PCB Spill area at US Army Depot Tooele Utah
10 AM 10-31-80 sample #'s RG 801031-1 thru 4
1 copy of episode statement from Junior Kerns sample = 801031-6

Acknowledgement of Plant Manager or Similar Official

The undersigned acknowledges that the samples described above have been collected:

Signature: Larry Fisher Title: Environmental Coordinator

Duplicate Samples for each Type of Sample Taken:

Sample #'s RG 801031-1 thru 4 Requested and provided: provided Not requested:

Name of person who collected samples: Rod W Clebe Title of Collector: CSO

Signature of Collector: Rod W Clebe

Distribution: one copy to Facility Plant Manager
original to PCB Violation Coordinator
one copy for Inspector's Records

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Spill History File

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RG 801031-5

SWORN STATEMENT

For use of this form, see AR 190-45; the proponent agency is Office of The Deputy Chief of Staff for Personnel.

LOCATION	DATE	TIME	FILE NUMBER
Tooele Army Depot	23 Sep 80	1130 hrs	
LAST NAME, FIRST NAME, MIDDLE NAME	SOCIAL SECURITY NUMBER		GRADE/STATUS
KERNS, JUNIOR D.	488-52-7214		1LT
ORGANIZATION OR ADDRESS			
Tooele Army Depot, Tooele, Utah			

I, Junior D. Kerns, WANT TO MAKE THE FOLLOWING STATEMENT UNDER OATH:

On Friday, 12 September 1980, the Environmental Office received a call from Sgt. Branch indicating that two (2) transformers had been damaged while being uncrated and that they were leaking oil onto the ground. Larry Fisher, the Environmental Coordinator and I were away from the office at the time the call was received, at about 1040 hours. We were given the message at about 1050 hours and went directly to the spill site after confirming the location over the phone. We met Sgt Branch at Building 659, the PCB permanent storage facility, and then went to the spill site, Lot 675C in the retrograde yard.

Both transformers were sitting in a row of about nine (9) that were being recrated (or re-palletized) prior to movement to Building 659. Although there appeared to be two varieties of transformers (as they were different colors, different configurations, and different external sizes) I now believe they were all the same stock number 6120-00-B50-1746. Both contained 645 gallons of transformer oil and were manufactured by Westinghouse; the serial numbers also appeared to be in the same general sequence.

The light gray transformer, serial number PCU 715613 was assigned sample number JK135. It had apparently been damaged by the forks on a forklift, as two of the fins had marks where they had been run into. Luckily the break on the one fin occured at the top of the transformer. We estimated that about 10 gallons of oil had spilled with a potential for another 10, or 20 total. Sgt. Branch had taken a piece of wood and wedged into the hole at the top of the fin, allowing just a small trickle to flow. An absorbent pad was placed at the base of the fin to absorb most of the dripping oil.

The dark gray transformer, serial number PCU 715613 was assigned sample number JK 136. It was punctured at the bottom of a fin and was spurting oil about 6 inches into the air when we arrived. About 150 gallons had spilled onto the ground. Because the break was at the low corner, we had Sgt. Branch raise that corner with an all terrain forklift and we placed three boards (est. 6X8) under it to make it the high corner. Sgt. Branch's assistant (an enlisted military whose name I don't remember) drove a wooden wedge and absorbent pad into the hole to slow up the flow.

We directed Sgt. Branch to place a berm around the entire surface area of the spill to prevent spreading of the oil. Sgt Branch and his man left for lunch at about 1130 hours. We left at about 1145 hours. The area had been roped off and our final estimate of how much oil could potentially escape was 620 gallons.

After lunch we discussed the spill with Dennis Bingham, the Facilities Engineer and Ray Johnson, the Engineering Branch Chief. Based on the facts that 75% of the transformers already tested did not have PCB in concentration of more than 50 PPM, the decision was made to treat the spill as an oil spill until testing should prove

EXHIBIT	INITIALS OF PERSON MAKING STATEMENT	PAGE 1 OF 3 PAGES

ADDITIONAL PAGES MUST CONTAIN THE HEADING "STATEMENT OF ___ TAKEN AT ___ DATED ___ CONTINUED." THE BOTTOM OF EACH ADDITIONAL PAGE MUST BEAR THE INITIALS OF THE PERSON MAKING THE STATEMENT AND BE INITIALED AS "PAGE ___ OF ___ PAGES." WHEN ADDITIONAL PAGES ARE UTILIZED, THE BACK OF PAGE 1 WILL BE LINED OUT, AND THE STATEMENT WILL BE CONCLUDED ON THE REVERSE SIDE OF ANOTHER COPY OF THIS FORM.

DA FORM 1 JUL 72 2823 SUPERSEDES DA FORM 2823, 1 JAN 68, WHICH WILL BE USED.

STATEMENT (Continued)

otherwise. I mailed the samples immediately and called AEHA (ATTN: Sandy Ehrhardt to let them know about the samples.

We went back out to the spill site that afternoon at about 1430 hours. A small berm had been placed at the base of the JK 1850 spill. It was saturated so we requested Lt. Diodonet to have a secondary berm placed around the entire contaminated area.

Monday morning we returned to the site; JK 1850 had slowed to a small stream and JK 1851 had stopped. The second berm had not been placed, but the contaminated area had not grown laterally. We again directed Lt. Diodonet to place the secondary berm. We also recommended moving the non-contaminated transformers to another location if possible.

The samples were analysed by AEHA by 1030 hours our time on Tuesday. Both were between 50 and 500 PPM, and therefore classified as "PCB contaminated" transformers. Ray Johnson and Dennis Bingham were notified and at about 1045 hours the TEAD ISCP was activated. The installation Commander and other listed offices on depot were contacted, as were EPA regional offices, DESCOM and DARCOM.

The area was appropriately marked and secured. The non-contaminated transformers were moved out of the immediate area. The Roads and Grounds Section was used to move empty 55 gallon drums to the site. ~~We also arranged to have pumps to remove the remaining oil in the two damaged transformers.~~ A crane was used to lift transformers up so that they could be drained for salvage. JDK 10-31-80

On Wednesday the oil was transfered to drums. About 900 gallons were salvaged, indicating less than 400 gallons had spilled onto the ground. The remaining barrels were moved to the area and the ground clean up began.

Contaminated soil was dug up and placed in the drums. All the drums have been marked and will be moved to the temporary storage facility for hazardous waste until a contract can be established to dispose of the material. Before the holes are filled with clean material, soil samples will be taken to assure that all contamination is removed. (Continued on 3rd Page)

AFFIDAVIT

I, Junior D Kerns HAVE READ OR HAVE HAD READ TO ME THIS STATEMENT WHICH BEGINS ON PAGE 1 AND ENDS ON PAGE 3. I FULLY UNDERSTAND THE CONTENTS OF THE ENTIRE STATEMENT MADE BY ME. THE STATEMENT IS TRUE. I HAVE INITIALED ALL CORRECTIONS AND HAVE INITIALED THE BOTTOM OF EACH PAGE CONTAINING THE STATEMENT. I HAVE MADE THIS STATEMENT FREELY WITHOUT HOPE OF BENEFIT OR REWARD, WITHOUT THREAT OF PUNISHMENT, AND WITHOUT COERCION, UNLAWFUL INFLUENCE, OR UNLAWFUL INDUCEMENT.

[signature]
(Signature of Person Making Statement)

WITNESSES:

Subscribed and sworn to before me, a person authorized by law to administer oaths, this 22 day of September, 19 80 at [illegible]

ORGANIZATION OR ADDRESS

[signature]
(Signature of Person Administering Oath)

Patricia B. Ferran
(Typed Name of Person Administering Oath)

ORGANIZATION OR ADDRESS

[illegible]
(Authority To Administer Oaths)

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STATEMENT OF KERNS, JUNIOR D.
TAKEN AT TOOELE ARMY DEPOT,
CONTINUED"

Because of the size of the spill (less than 1000 gallons), it was not reportable as an oil spill, however, once it was determined to be a PCB spill, the ISCP was followed.

END OF STATEMENT

Junior D Kerns

OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: area where PCB contaminated soil was removed

Location: U.S. Army Depot County: Tooele State: Utah

Date: 10-31-80 Time: 10:30 AM

Photographer: R. Reed/W. Gibbs

Film: Polaroid ASA:

Location of Negative:

File: #

Witness: Kris Mullen

Process:

Paper:

OFFICIAL PHOTOGRAPH
ENVIRONMENTAL PROTECTION AGENCY

Subject: Close 55-gallon drums containing PCB contaminated soil

Location: U.S. Army Depot County: Tooele State: Utah

Date: 10-31-80 Time: 10:30 AM

Photographer: Reed W. Gibbs

Film: Polaroid ASA:

Location of Negative:

File: #

Witness: Kris Mullen

Process:

Paper:

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

February 19, 1981

Transmittal of PCB Violation Case
Tooele Army Depot - Tooele, UT

8AH-TS

Lance Vinson, Director
Enforcement Division

Transmitted herewith is the evidence to support the suspected violations of 40 CFR 761, promulgated under Sections 15(1)(C) and 6(e) of the TSCA.

On October 31, 1980, Rod Glebe and Kris Mullen conducted a PCB inspection at the subject facility in response to a report that two large PCB transformers had been punctured by a fork lift while being moved. This was confirmed. The scope of the inspection was limited to the clean-up and the PCB storage facility.

In addition, it was revealed that about 1000 gallons of PCB-contaminated transformer oil had leaked from the transformers onto the ground. The clean-up resulted in 440 55-gallon drums of contaminated soil and 18 55-gallon drums of contaminated oil being stored for disposal.

Henry Bonzek conducted a follow-up PCB inspection on January 29, 1981, to check on the clean-up, storage for disposal, and PCB records. He found a number of violations, including the 440 and 18 55-gallon drums still stored for disposal outside a proper storage facility.

The following violations were observed:

Inadequate storage facility	761.42(b);
Inadequate Records	761.45(a)(1)(i)
	761.45(b)(1)
	761.45(b)(3)(i)
	761.45(b)(3)(iii)
	761.45(b)(4).

There is no Judge Advocate General at Tooele Army Depot. Correspondence should be addressed to:

Commander
Tooele Army Depot
ATTN: Legal Office
Tooele, UT 84074

Robert L. Duprey, Director
Air & Hazardous Materials Division

Attachments:
CSO Report (Glebe)
CSO Report (Bonzek)

CONCURRENCES							
SYMBOL	8AH-TS	8AH-TS:SENCH:ml:2/19/81 bcc				Glebe, Mullen, Bonzek	
SURNAME	Johnson						
DATE	2/25/81						

EPA Form 1320-1 (12-70) OFFICIAL FILE COPY

SPILL REPORT FORM

TTR ☐ NTR ☒

Type: PCB ////

Case No: U81318

Source: /////

*SPCC No:

Spill Cause: /////

*I.D. No: 0 / 8 / / / / / / /

Spill Date: 810723 Spill Time: Assignee:

Reported to NRC:

Date: 810725 Time: 1015

By: annonomus

Organization:

Address:

Zip:

Phone No: ( )

Location: ¼ ¼ Sec. T R

Tooele army depot

*Lat. /////// *Long. ////////

*Nearest City: Tooele *Zip

Reported to EPA:

Date: 810725 Time: 1020

By: NRC

Organization:

Address:

Zip

Phone No: ( )

County: Tooele

State: Utah

Cause: [illegible] Bldg 659 north end on 23 July
another occasion at Bldgs 667 and 617 South end. for a total spillage of about 100 gallons
7 people have checkup at dispensary.

Amt. Spilled: 100 Gallons (Units) Into Water: none (Units)

Receiving Waters *Threatened:

Discharging Facility:

Name: Tooele Army Depot

Address:

Tooele Utah Zip:

Phone No: ( )

Owner/Operator (if different)

Name:

Address:

Zip:

Phone No: ( )

Mitigation and Disposal:

Report received by:
*Entered by Coder E. F. Nichols

OVER

TELEPHONE CONVERSATION REPORT

DATE: 810805 TIME: 0930 FILE: U8131P

FROM: Don Hildon PHONE: 801/533-6146

TITLE & ORGANIZATION: Ut St Health - Water Qual

TO: Fon PHONE: 2468

TITLE & ORGANIZATION:

SUBJECT: PCB problems @ Tooele Depot.

SUMMARY OF TELEPHONE CONVERSATION:

He talked to Dave Woodworth Am 8/5- Woodworth is Env. Engr working for Larry Fisher - Tooele Env. Coord. 801/833-3108.

According to Woodworth:

- Bldg's noted were specially designed for storage of PCB containers
- No known spillage outside Bldg's
- 7/23 - one worker treated in base dispensary for skin contact w/PCB
- 8/3 - 2 workers treated for skin contact. - TSWP

COPIES TO: B. Harding - EPA FILE

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AUG 0 6 19[illegible]

TELEPHONE CONVERSATION REPORT

DATE: 810803 TIME: 1900 FILE: 481318

FROM: Ensign Ambrozewicz PHONE: 800/424-8802

TITLE & ORGANIZATION: NRC

TO: FDN PHONE:

TITLE & ORGANIZATION:

SUBJECT: Repeat of earlier report - PCB spills

SUMMARY OF TELEPHONE CONVERSATION:

Tooele Army Depot, Tooele County, Utah
Call from Jeff Pruner - Home address
1000 N 325 E Apt C Pleasant Grove, Ut 84062
ph 801/785-0521. (Doesn't want his
name used since he works at the Depot)

Has been moving transformers at the
Depot the past 2-3 weeks. transformers
are and have been leaking. 30-40 gal
on floor inside Bldg 659. Oil on
ground at NW corner of Bldg 679
Sewer system inlet at site across street
from Bldg 679.

Workers on the job without body protection
Pruner currently experiencing loss of
sensation in thumb. Worried this may
have been caused by contact w/ PCB.

COPIES TO: Bob Harding FILE

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DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010

Ms. Ehrhardt/lm/AUTOVON
584-3613

REPLY TO ATTENTION OF
SE-RP-MO/WP

7 AUG 1981

SUBJECT: Special Investigation No. 20-44-0664-81, Analysis of Transformer Fluid Samples for Polychlorinated Biphenyls (PCBs), Tooele Army Depot, Tooele, Utah, Follow-up Report, 10 July 1981

Commander
US Army Materiel Development
and Readiness Command
ATTN: DRCSG
5001 Eisenhower Avenue
Alexandria, VA 22333

1. AUTHORITY. Letter, SDSTE-SEF, Tooele Army Depot, Tooele, Utah, 18 January 1980, subject: PCB Analysis for Tooele Army Depot.

2. REFERENCE. Title 40, Code of Federal Regulations (CFR), 1980 rev., Part 761, Polychlorinated Biphenyls (PCBs), Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.

3. PURPOSE. To determine the presence and extent of PCBs and to provide assistance as requested in the solution of any related technical or administrative problems.

4. FINDINGS. As requested in paragraph 1, results of electron-capture, gas-liquid chromatographic and/or density analyses are inclosed. The PCBs analyzed for included Aroclor® 1016, 1221, 1232, 1242, 1248, 1254, 1260, and 1262. Per 40 CFR 761, subject fluid samples may be categorized as "non-PCB" (less than 50 ppm PCBs), "PCB-contaminated" (greater than or equal to 50 ppm but less than 500 ppm PCBs) or "PCB" (500 ppm PCBs or greater).

® Aroclor is a registered trademark of Monsanto Company, 800 N. Lindenbergh Blvd, St. Louis, MO 63166. Use of trademarked names does not imply endorsement by the US Army, but is intended only to assist in identification of a specific product.

HSE-RP-MO/WP
SUBJECT: Special Investigation No. 20-44-0664-81, Analysis of Transformer Fluid Samples for Polychlorinated Biphenyls (PCBs), Tooele Army Depot, Tooele, Utah, Follow-up Report, 10 July 1981

5. TECHNICAL ASSISTANCE. General information as to the disposal of PCB material is included in Inclosure 2. Further information relative to the PCB analysis may be obtained by calling the Project Officer, Ms. Sandra Ehrhardt, AUTOVON 584-3613/2177. Specific information addressing disposal problems may be obtained by contacting the Waste Treatment and Disposal Technology Branch, Directorate of Environmental Quality, USAEHA, Aberdeen Proving Ground, MD 21010 AUTOVON 584-2024.

FOR THE COMMANDER:

2 Incl
as

FRANK E. McDERMOTT
COL, MSC
Director, Radiation and
Environmental Sciences

CF:
HQDA (DASG-PSP)
Cdr, HSC (HSPA-P)
Cdr, FAMC (PVNTMED Actv)(2 cy)
Cdr, DESCOM
Cdr, TEAD (2 cy)
C, USAEHA-Rgn Div West

COPIES RECEIVED 2

Distr.	Action:	Distr:	Action:
CO		MIS	
XO		PAO	
SGM		OA	
ADJ		RM	
AE		RMFC	
AS		SAF	
CAM		SEC	
PO		SU	
CSO		CLINIC	
EEO		MMC	2
LEG		POO	
MA		USACC	
CO READING FILE			

HSE-RP

DEPARTMENT OF THE ARMY MS EHRHARDT/eoh/AUTOVON
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY 584-3613
ABERDEEN PROVING GROUND, MARYLAND 21010

HSE-RP-MO

3 NOV 1981

SUBJECT: Results of Laboratory Analysis for Tooele Army Depot, Tooele, Utah

Director
US Environmental Protection Agency
Region VIII
ATTN: 8AH-TS (Paul W. Hanneman)
1860 Lincoln Street
Denver, CO 80295

1. References.

a. Letter, 8AH-TS, your Agency, 21 October 1981.

b. Telephone conversation between Ms. Sandra Ehrhardt, this Agency, and Mr. Paul W. Hanneman, your Agency, 29 October 1981, subject as above.

2. In response to your request, results are attached as the Inclosure.

3. Further questions regarding these analyses may be directed to Ms. Sandra Ehrhardt, Commercial (301) 671-3613/4131.

FOR THE COMMANDER:

Joseph T. Whitlaw, Jr.

JOSEPH T. WHITLAW, JR.
COL, MSC
Director, Radiation and
Environmental Sciences

1 Incl
as

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October 21, 1981

REF: SAH-TS

Commander
U.S. Army Environmental Hygiene Agency
Aberdeen Proving Grounds, MD 21010

Attention: HSE-RP-MD (Sandy Ehrhardt)

Dear Ms. Ehrhardt:

I recently conducted a PCB Inspection at Tooele Army Depot in response to a complaint our office received about alleged PCB spills. Mr. Larry Fisher, the Environmental Coordinator at Tooele, said he had taken soil samples from the spill areas and sent to your Lab for analysis for PCBs. He also said he received a verbal report from your office that the Lab results indicated the soil samples from the area to contain less than 50 ppm PCB.

Would you please send me a copy of the Lab report for sample numbers JK1979 and JK1960. Thank you for your cooperation and if you have questions, please call me at (303) 837-6231.

Sincerely,

Paul W. Hanneman
Consumer Safety Officer

SAH-TS:HANNEMAN:bmw:10/21/81

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November 13, 1981

PCB Inspection (PCB82-1)
Tooele Army Depot - Tooele, UT

8AH-TS

Robert W. Harding, Chief
Field Operations Section

I conducted a PCB Inspection at Tooele Army Depot on October 14, 1981, in response to three complaints received by the EPA. The complaints referred to three spills of suspected PCB liquid in buildings 659 and ~~677~~ 677 and possible PCB exposure of three to ten workers (see attached spill reports).

I met the following criteria:

- Credentials were shown.
- Notice of Inspection and Confidentiality Notice was given to Mr. Larry Fisher.
- Receipt for Samples and Preliminary Notice of Inspection Results were mailed 10/15/81.

The following people were involved in the PCB Inspection:

Larry Fisher, Environmental Coordinator, U.S. Department of Army

Mason Walker, Technician, Environmental Services, U.S. Department of Army

Terry L. Thompson, Deputy Director of Supply, U.S. Department of Army

Captain Stephen Wilson, U.S. Army Security

Paul Hanneman, Consumer Safety Officer, EPA

I confined my inspection to the spill complaints, because Tooele had been inspected by two other EPA Inspectors.

The complaints indicated PCB liquid had been spilled in Buildings 659 and 677. I discussed these reported spills with Fisher, Walker & Thompson, and they were aware of Transformer Oil being spilled in Bldg. 659 and Bldg. 677. Fisher had taken two soil samples; Sample #JK1979 is a sample from the spill at Bldg. 677, and Sample #JK1960 was a sample from the spill in Bldg. 659. Fisher said he had received a verbal report from their lab that both spills were less than 50 ppm PCB. I wrote a letter to Sandy Ehrhardt at the U.S. Army Lab, requesting the lab results for sample numbers JK1960 and JK1979. I received their letter November 9, 1981, confirming Fisher's statement (see attachment). I also discussed the claims of worker exposure to suspected PCBs. Fisher and Walker were aware

of a complaint lodged by J. Tanner through the U.S.C.G. about a PCB spill and human exposure to suspected PCB (see attachment). The U.S. Army appointed Captain Stephen Wilson to investigate the complaint and submit finding and recommendations to the Commanding Officer (see attachment). A summarization of the findings of Captain Wilson's report and my findings: Mr. Tanner was moving transformers inside the PCB Storage Facility in Bldg. 659 and probably did come in contact with Transformer Oil. Fisher and Wilson said the transformers Tanner was moving and handling had all been tested for PCBs and contained less than 50 ppm PCBs. Wilson recommended safety procedures to be implemented by Environmental Services and Supply Division for worker protection in handling the transformers in Bldg. 659.

I asked Fisher to show me the official PCB records. He showed me a listing of "PCB transformers in storage at Tooele Army Depot," dated January 21, 1981. The list contains transformer make, serial number, a sample number, locations, and level of PCB contamination. He also showed me the lab results for the1929 transformers in storage in Bldg. 659 at Tooele. I asked for and received copies of these documents by mail on October 22, 1981 (see attachment). I also received a copy of Walker's monthly PCB Storage Facility inspection checklist, which indicates he inspects the PCB Storage Facility and its contents monthly (see attachment).

We all went to Bldg. 659, which contains Tooele's PCB Storage Facility. There was no PCB mark on the exterior of building. At Door 19 was an oil stain about 6 foot across. This oil stain was the source of Soil Sample #JK1960, which contained no detectable PCBs (see attachment). This oil spill is the same which is the object of two of our complaints. Fisher said the oil spilled out of a transformer while it was being moved into the Storage Facility. Inside Building 659 is the PCB Storage Facility. The building had adequate roof, walls, and the floor had been sealed with an epoxy sealer. The PCB storage area of this building is 180 feet wide, 250 feet long, and surrounded by an 8-inch berm. The berm is constructed of smooth concrete and is continuous except at Door Number 17. 20 feet inside Door 17, the berm is broken and crumbled in three or four spots (see photo attachment). Fisher said this damage is from the impact of heavy equipment moving over the berm to move transformers. Walker noted in his records the berm was broken on his inspection of 9/18/81, and he advised Mr. Allen to submit a work order for repair of the berm. Allen supplied me with a copy of the work order for the repair which he submitted 10/2/81 (see attachment number 11 .

Inside Door 17 of Building 659 and setting outside the PCB storage area were three large "Standard Transformers," Serial Numbers 38169, 38170, and 38168. All three transformers were 500 kva, and contained 254 gallons of Pyranol. All three transformers had large PCB marks and were setting on wooden palates and not leaking. Allen and Fisher said those transformers had set there at least since April. Neither man had noticed those PCB transformers were setting outside the PCB storage area.

Inside the PCB storage area were, according to Fisher, 1,929 transformers. The sample records indicate the contents of the storage facility is 1,438 transformers or 74.42% non-PCB, 439 transformers or 22.73% PCB contaminated, and 52 transformers or 2.85% PCB. All the PCB transformers I checked were not leaking, and had large PCB marks. I checked all 30 to 40 transformers, and all of them were stenciled with a sample number and code letter indicating level of contamination. The code is the lettering system to indicate PCB level: "A" is 0 to 49 ppm PCB, "B" is 50 to 499 ppm PCB, and "C" is 500 and up ppm PCB. I asked Fisher and Thompson to explain the final disposition of these transformers. Fisher said all non-PCB transformers would be shipped to Hill Air Force Base, to be rebuilt. PCB and PCB contaminated transformers were going to be held in storage. No determination had been made about disposal or reuse of the transformers.

I gave Mr. Fisher a verbal Preliminary Notice of Inspection because the Base Commander wanted the form mailed to him. I gave him the following summation.

- Official PCB records were incomplete
- PCB storage facility was not marked
- 3 large PCB transformers were outside the PCB storage facility
- Berm in PCB storage facility was broken.

Paul W. Hanneman
Consumer Safety Officer

Attachments:
1. Notice of Inspection
2. Receipt for Sample
3. Confidentiality Notice
4. Preliminary Results of Inspection Spill Report
5. Spill Report
6. U.S. Army Lab Results Book
7. U.S. Army Investigation Report
8. PCB Records
9. PCB Checklist of PCB Storage Facility
10. 2 Letters to U.S. Army
11. Copy of PCB Storage Facility Repair Work Order
12. U.S. Army Sample Results Letter

8AH-TS:HANNEMAN:bmw:11/13/81

HSE-RP-MO
SUBJECT: Special Investigation No. 20-44-0664-81, Analysis of Transformer Fluid Samples for Polychlorinated Biphenyls (PCBs), Tooele Army Depot, Tooele, Utah, Follow-up Report, 10 July 1981

TABLE. Results of Analysis.

SAMPLE NO.		USAEHA NO.	PCB RESIDUE (ppm)
1925		P4818	>50<500
1926		P4819	<50
1927	67/3981	P4820	>50<500
1928		P4821	>50<500
1929		P4822	>50<500
1930	404 W 1216	P4823	<50
1931		P4824	<50
1932		P4825	<50
1933		P4826	<50
1934		P4827	>50<500
1935		P4828	>500
1936		P4829	<50
1937		P4830	<50
1938		P4831	<50
1939	404 SN 1045	P4832	>50<500
1946		P5262	<50

This Action Only

Sandra R. Ehrhardt
for CLIFFORD C. ROAN, Ph.D.
Chief, Pesticide Monitoring Branch
Pest Management and Pesticide
Monitoring Division

DEPARTMENT OF THE ARMY
TOOELE army DEPOT
TOOELE, UTAH 84074

REPLY TO
ATTENTION OF:

SDSTE-ASF

25 NOV 1981

Mr. Paul W. Hanneman
Consumer Safety Officer
U. S. Environmental Protection Agency
Region VIII
1860 Lincoln Street
Denver, CO 80295

Dear Mr. Hanneman:

Reference is made to your letter dated October 21, 1981, regarding your PCB inspection conducted on October 14, 1981 (copy attached).

The following measures have been taken regarding your inspection results of probable violations of EPA regulations concerning PCBs:

a. PCB records are now complete as per Federal Register, Thursday, May 31, 1979, Section 761.45.

b. PCB storage facility now has PCB warning signs on four sides of building.

c. The three large PCB transformers have been moved inside the storage facility.

d. The containment berm which was broken has been repaired.

If you have any questions regarding the above information, please contact Larry Fisher, Environmental Coordinator, Tooele Army Depot, (801)833-2891.

Sincerely,

JERRY K. PATTERSON
Colonel, OrdC
Commanding

1 Incl
As stated

CF:
Cdr, DESCOM, ATTN: DRSDS-EF w/incl
Cdr, DARCOM, ATTN: DRCIS-A w/incl
Dir f/Supply w/incl

DEC 1981

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DEC 2 1981

Transmittal of PCB Violation Case
Tooele Army Depot, Tooele, Utah

8AH-TS

Christine Phillips, Acting Director
Enforcement Division

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On October 14, 1981, Paul Hanneman conducted a PCB inspection in buildings 659 and 677 in response to a complaint that PCBs had been spilled and that persons had been exposed. Lab results indicated the oil contained less than 50 ppm PCB.

However, during the inspection the storage and records facility in building 659 was examined. The following violations were observed

Inadequate records 761.45(a)(3)(ii)

It should be noted that previous PCB violations at Tooele have been transmitted to the Enforcement Division on February 19, 1981, and April 14, 1981.

There is no Judge Advocate General at Tooele Army Depot. Correspondence should be addressed to:

Commander
Tooele Army Depot
Attention: Legal Office
Tooele, Utah 84704

/s/ original signed by Robert L. Duprey

Robert L. Duprey, Director
Air and Hazardous Materials Division

Attachment
1. Inspector's Report
2. Ltr. from Department of the Army dated Nov. 25, 1981

BENCH:ksb:1044D:12-2-81:3926

CONCURRENCES								
SYMBOL	8AH-TS	8AH-TS	8AH-TS	8AH				
SURNAME	Bench	Harding	Johnson					
DATE	12-2-81	12-2-81	12/2/81	12-2-81				

EPA Form 1320-1 (12-70) OFFICIAL FILE COPY

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October 21, 1981

REF: 3AH-TS

Col. Jerry K. Patterson
Commander
Tooele Army Depot
Tooele, Utah 84074

Dear Sir:

Enclosed is a receipt for samples and a Preliminary Notice of Inspection Results for the PCB Inspection I conducted on October 14, 1981.

I would like to thank the Environmental Services and Supply Services for their cooperation.

Sincerely,

Paul W. Hanneman
Consumer Safety Officer

Enclosure

3AH-TS:HANNEMAN:bmw:10/21/81

25

United States Environmental Protection Agency

CEIPT FOR SAMPLES AND DOCUMENTS

ector Name

Paul W. Hanneman

Inspector Address

EPA/Region VIII
1860 Lincoln
Denver, CO 80295

Name of Firm

TOOELE ARMY DEPOT

Firm Address

TOOELE UT
84074

Name of Individual

CARA FISKER

Title

ENVIRONMENTAL SPECIALIST

ate Collected	Duplicate Samples Requested and Received: ( ) Yes (X) No	Sample Numbers
10/14/81		

he documents and samples of chemical substances and/or mixtures described below were collected n connection with the administration and enforcement of the Toxic Substances Control Act (TSCA).

eceipt for the document(s) and/or sample(s) described is hereby acknowledged:

PHE10714-1 DEPARTMENT of ARMY REPORT ABOUT PCB Spill 3/8/81 BY CPT STEPHEN WILSON

PHE10714-2 - PHOTO TAKEN BY CARA FISKER OF THE BROKEN CONTAINMENT BERM IN BLD 659-

PHE10714-3 STANDARD OPERATING PROCEDURES FOR PCB STORAGE FACILITY WORKING, REPAIRS, AND PROCEDURES

PHE10714-4 RECALL OF PCB STORAGE FACILITY MAINTENANCE CHECKLIST

Signature of Inspector	Signature of Owner, Operator or Agent
Title: Consumer Safety Officer	Title

HSE-RP-MO
SUBJECT: Results of Laboratory Analysis for Tooele Army Depot, Tooele, Utah

TABLE. Results of Analysis.

TOOELE ARMY DEPOT SAMPLE NO.	USAEHA NO.	PCB RESIDUE (ppm)
JK 1960	SP 5261	ND*
JK 1979	SP 5279	28

*Not detectable. The lower limit of detectability for PCBs in these soil samples is 1 µg/g (ppm).

February 13, 1981

PCB Inspection (Follow-up)
Tooele Army Depot - Toole, UT

8AH-TS

Robert W. Harding, Chief
Field Operations Section

On January 29, 1981, as a follow-up to a previous PCB inspection of this facility conducted by Rod Glebe on October 31, 1981, I returned to the Tooele Army Depot to determine the PCB storage records required by the PCB regulations were being maintained. I showed my credentials to Mr. J. Raymond Johnson, chief, Engineering & Environmental Control Branch. I prepared a TSCA Notice of Inspection form, which was signed by Mr. Johnson and I gave a copy to him.

Mr. Johnson said that sample test results for all but about 85 of the roughly 2000 used transformers stored at this facility had been received and a document titled "PCB Transformers in Storage at Tooele Army Depot" had been prepared showing the results. When the remaining results are obtained, a copy will be forwarded to the Grand Junction office.

I was introduced to 1st LT Junior Kerns, environmental engineer. He and I drove to Building No. 659 where all the transformers were being stored so that I could determine if they were marked according to regulations. All but three of the transformers were being stored as per regulation. However, the three being stored in Bldg. 659, outside the dyked area, were Standard Transformers with 254 gallons of pyranol in each of them.

I took photographs (Doc. Sample No. HB_1-810129) of Standard Transformer Serial 34169. All PCB and PCB-contaminated transformers were marked with the required PCB mark. However, none of the transformers were marked with the date placed into storage. In addition, LT Kerns could not find the three Standard Pyranol Transformers in "PCB Transformers in Storage at Tooele Army Depot." I took additional photographs of the transformer/capacitor storage area, as well as of several transformers and capacitors in the storage area. LT Kerns said that the stored PCB spilled items, which Rod Glebe had investigated, were still in the same location as during the initial inspection.

FINDINGS AT TOOELE ARMY DEPOT

A. Record Keeping: The document titled "PCB Transformers in Storage at Tooele Army Depot" reflects the extensive work done here regarding the testing of all transformers and the marking of all PCB and PCB-contaminated transformers. There are approximately 85 transformers which have not been sampled, but this record will be updated when the test results come in. In addition, there are three Standard Pyranol Transformers which do not appear in this document. LT Kerns was at a loss to say why, except they had recently been received from Hill Air Force Base, Ogden, Utah.

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B. Marking: All PCB and PCB-contaminated transformers and capacitors were marked with the large, yellow/black PCB mark. None of the transformers were marked with the date placed in storage. However, I was assured that this would be done shortly.

C. Testing of Transformers: All used transformers have been, or will be, tested to determine if there is any PCB contamination.

D. Servicing of Transformers: All used non-PCB transformers will eventually be rebuilt and reused. The PCB and PCB-contaminated transformers may be reused or they may be disposed of. However, that determination has not been made yet and won't be made until the summer of 1981. Who will rebuild the transformers has not been determined, either.

E. Storage for Future Disposal: Whether or how the PCBaand PCB-contaminated transformers will be diposed of has not yet been determined. A decision in the matter will be made sometime in the summer of 1981, according to J. Raymond Johnson, chief, Engineering and Environmental Control Branch.

F. Disposal: The only disposal problem at this time is that of the 55-gallon drums of contaminated soil and oil which came from the earlier spill and clean-up Rod Glebe investigated. All these drums are still being stored outside, according to LT Kerns.

G. Health & Safety Procedures: All individuals interviewed seemed well aware of the hazards associated with PCBs. All PCB and PCB-contaminated transformers and capacitors were marked (with PCB marks) and stored as per regulations, except for three Standard Pyranol Transformees, which were being stored outside the dyked area of Bldg. 659.

H. Documents: Copy of "PCB Transformees in Storage at Tooele Army Depot"; I prepared a TSCA Receipt for Samples and Document form and LT Kerns signed it. I gave a copy of this form to him.

There are -- according to the Document "PCB Transformres in Storage at Tooele Army Depot" -- 401 PCB-contaminated transformees (50-500 ppm); 49 PCB transformers (501 ppm - 1000,000 ppm); and six PCB transformers (over 100,000 ppm) in storage at the Tooele Army Depot. Disposition of these transformers has not been decided and won't be until the summer of 1981. All PCB and PCB-contaminated transformers are marked with the large yellow/black PCB mark. However, none of the transformers are marked with the date placed in storage. The PCB transformer/capacitor storage area conforms to PCB regulation requirements and all but three of the PCB transformers are stored in the dyked area. Those three Standard Pyranol (254 gallon) Transformers are stored inside Bldg. 659, but outside the dyked area. Extensive testing and documentation has been completed thus far for the roughly 2000 used transformers in storage at this facility. There were no unusual circumstances ntoed and it does not appear that

additional investigations at this facility are warranted. I gave a copy of TSCA Receipt for Samples and Documents form to LT Junior Kerns.

Henry F. Bonzek, Jr.
Enforcement Inspector

Attachments:
1. Notice of Inspection
2. "PCB Transformers in Storage at Tooele Army Depot"
3. Photographs:

   A. Doc. Sample No. HB_1-810129 - Standard Pyranol Transformer #34169
   B. Transformer/Capacitor Storage Area
   C. Transformers and Capacitors in Storage AREa

4. Non-PCB Mark
5. Receipt for Samples

8AH-TS:BONZEK:ml:2/13/81

bcc: Glebe

PCB INSPECTION MEMO — TOOELE ARMY DEPOT, TOOELE, UTAH

ON JAN 29, 1981, AS A FOLLOW-UP TO A PREVIOUS PCB INSPECTION OF THIS FACILITY CONDUCTED BY BOB CLERC ON OCT 31, 1981, I RETURNED TO THE TOOELE ARMY DEPOT TO DETERMINE IF THE PCB STORAGE RECORDS REQUIRED BY THE PCB REGULATIONS WERE BEING MAINTAINED. I SHOWED MY CREDENTIALS TO MR J. RAYMOND JOHNSON, CHIEF, ENGINEERING & ENVIRONMENTAL COMPLIANCE BRANCH. A TSCA NOTICE OF INSPECTION FORM, WHICH WAS SIGNED BY MR JOHNSON AND I GAVE A COPY OF ~~PCB Form 2~~ to Wm. MR JOHNSON SAID THAT SAMPLE TEST RESULTS FOR ALL BUT ABOUT 35 OF THE ~~ABOUT~~ 200 TRANSFORMERS STORED AT THIS FACILITY HAD BEEN RECEIVED AND A DOCUMENT TITLED "PCB TRANSFORMERS IN STORAGE AT TOOELE ARMY DEPOT" HAD BEEN PREPARED SHOWING THE RESULTS (WHEN THE REMAINING RESULTS ARE OBTAINED) A COPY WILL BE FORWARDED TO THE GRAND JUNCTION OPS OFFICE. I WAS ~~THE~~ INTRODUCED TO MR 1ST LT JUNIOR KORNIS, ENVIRONMENTAL ENGINEER (R) ~~MR~~ HE AND I DROVE TO BUILDING NO 654 WHERE ALL THE TRANSFORMERS WERE BEING STORED SO THAT I COULD DETERMINE IF THEY WERE MARKED ACCORDING TO REGULATIONS. ALL BUT THREE OF THE TRANSFORMERS WERE BEING STORED AS PER REGULATIONS. HOWEVER, THE TWO ~~FLUID~~ BEING STORED IN BLDG 654; OUTSIDE THE DOORS OF ~~EACH~~, WERE STANDARD TRANSFORMERS WITH 25+ PPM OF PCB'S IN THEM. I took PHOTOGRAPHS (DOC SAMPLE NO 1 & 2) OF THESE TWO STORED TRANSFORMERS. SEVERAL

FINDINGS AT TOOELE ARMY DEPOT

A. RECORD KEEPING: THE DOCUMENT TITLED "PCB TRANSFORMERS IN STORAGE AT TOOELE ARMY DEPOT" REFLECTS THE EXTENSIVE WORK DONE HERE REGARDING THE TESTING OF ALL TRANSFORMERS AND THE MARKING OF ALL PCB & PCB-CONTAMINATED TRANSFORMERS. THERE ARE APPROXIMATELY 83 TRANSFORMERS ~~THAT~~ which HAVE NOT BEEN SAMPLED, BUT THIS RECORD WILL BE UPDATED ~~AS TEST RESULTS ARE~~ WHEN THE TEST RESULTS COME IN. IN ADDITION THERE ARE (5) STANDARD PYRANOL TRANSFORMERS ~~THAT~~ which DO NOT APPEAR IN THIS DOCUMENT. (2) LT ICENOS WAS AT LOSS TO SAY WHY ~~EXCEPT~~ THEY HAD RECENTLY BEEN REUSED FROM HILL AIR FORCE BASE, OGDEN, UTAH.

B. MARKING: ALL PCB & PCB-CONTAMINATED TRANSFORMERS & CAPACITORS WERE MARKED WITH THE LARGE, YELLOW/BLACK PCB MARK. NONE OF THE TRANSFORMERS WERE MARKED WITH THE DATE PLACED IN STORAGE. HOWEVER, I WAS ASSURED THAT THIS WOULD BE ~~DONE~~ done SHORTLY.

C. TESTING OF TRANSFORMERS: ALL USED TRANSFORMERS HAVE BEEN, OR WILL ~~BE~~ BE, TESTED TO DETERMINE IF THERE IS ANY PCB CONTAMINATION.

D. SERVICING OF TRANSFORMERS: ALL USED NON-PCB TRANSFORMERS WILL EVENTUALLY BE REBUILT AND REUSED. THE PCB & PCB-CONTAMINATED TRANSFORMERS MAY BE

E. STORAGE FOR FUTURE DISPOSAL: WHETHER OR HOW THE PCB & PCB-CONTAMINATED TRANSFORMERS WILL BE DISPOSED OF HAS NOT YET BEEN DETERMINED BY EPA. A DECISION IN THIS MATTER WILL BE MADE SOMETIME IN THE SUMMER OF 1981, ACCORDING TO J. RAYMOND JOHNSON, CHIEF, ENGINEERING & ENVIRONMENTAL CONTROL BRANCH.

F. DISPOSAL: THE ONLY DISPOSAL PROBLEM AT THIS TIME IS THAT OF THE 55-GAL. DRUMS OF CONTAMINATED SOIL AND OIL WHICH CAME FROM THE GARLOCK SPILL AND CLEAN-UP. THE RCI GLEBE HAS INVESTIGATED ALL THESE DRUMS ARE STILL BEING STORED OUTSIDE, ACCORDING TO LT. KEHNS.

H. HEALTH & SAFETY PROCEDURES. ALL INDIVIDUALS INTERVIEWED SEEMED WELL AWARE OF THE HAZARDS ASSOCIATED WITH PCB'S. ALL PCB & PCB CONTAMINATION TRANSFORMERS & CAPACITORS WERE MARKED (WITH PCB MARK) & STORED AS PER REGULATIONS, EXCEPT FOR (3) STANDARD PYRANOL TRANSFORMERS, WHICH WERE BEING STORED OUTSIDE OF THE DIKED AREA OF BLDG 659.

I. DOCUMENTS: COPY OF: "PCB TRANSFORMERS IN STORAGE AT TOOELE ARMY DEPOT"; I RECEIVED a TSCA RECEIPT FOR SAMPLES & DOCUMENT FORM ~~ON~~ WHICH WAS PREPARED ~~BY~~ AND SIGNED ~~BY LT. TOOELE KEHNS, ENVIRONMENTAL~~ BY LT KEHNS. I GAVE A COPY OF THIS FORM TO WM. TIETZE

There are — according to the Document "PCB Transformers" 3 in storage at Tooele Army Depot -- 461 PCB-Contaminated Transformers (50 - 500 ppm); 49 PCB Transformers (500 ppm - 100,000 ppm); and (6) PCB Transformers (over 100,000 ppm) in storage at the Tooele Army Depot. Disposition of these transformers has not been decided and won't be until the summer of 1981. All PCB & PCB-contaminated transformers are marked with the large yellow/black PCB mark. However, none of the transformers are marked with the date placed in storage. The PCB transformer/capacitor storage area conforms to PCB regulation requirements and all but three of the PCB transformers are stored in the dyked area. These (3) standard Pyranol (259 gals) transformers are stored inside Bldg 659, but outside the dyked area. Extensive testing & documentation has been completed thus far for the roughly 2000 used transformers in storage at this facility. There were no unusual circumstances noted and it does not appear that additional investigations at this facility are warranted. I gave a copy of TSCA Receipt for Samples & Documents ~~[illegible]~~ to LT John Kerns

Henry F Bagdh[illegible]

Enforcement Inspector

Toxic Substances Branch

DATE PLACED INTO STORAGE. IN ADDITION, LT. KEENS COULD NOT FIND ~~EITHER~~ THE THREE STANDARD PYRAMID TRANSFORMERS ~~IN THE DEPOT~~ IN STORAGE AT TOOELE ARMY DEPOT. I TOOK ADDITIONAL PHOTOGRAPHS ~~OF THESE~~ OF THE TRANSFORMER/CAPACITOR STORAGE AREA, AS WELL AS OF SEVERAL TRANSFORMERS AND CAPACITORS IN THE STORAGE AREA. LT. KEENS SAID THAT THE STORED PCB SPILLER ITEMS, ~~WHICH~~ WHICH CID CLOSE HAD INVESTIGATED, WERE STILL ~~HAVE BEEN MOVED~~ IN THE SAME LOCATION AS DURING THE INITIAL INSPECTION.

ATTACHMENTS:

1. TSCA NOTICE OF INSPECTION BY J. RAYMOND JOHNSON
2. COPY OF "PCB TRANSFORMERS IN STORAGE AT TOOELE ARMY DEPOT"
3. PHOTOGRAPHS:
   A. DOC SAMPLE No HB, -810129 - STANDARD PYRANOL TRANSFORMER SERIAL 34169
   B. TRANSFORMER/CAPACITOR STORAGE AREA
   C. TRANSFORMERS & CAPACITORS IN STORAGE AREA.
4. NON-PCB MARK
5. TSCA RECEIPT FOR SAMPLES & DOCUMENTS BY JUNIOR KERNS

Attachment 2

Weekly Field and Laboratory Quality Control Report

JACOBS ENGINEERING

Transmittal:96ff0_13.doc

July 17, 1996

TO: CESPK-ED-EB
Attn: Mr. Lester Schmittner
1325 J Street
Sacramento, California 95814-2922
(916) 557-7812

FROM: Joel Kushins for
Project Manager
Jacobs Engineering Group
2525 Natomas Park Dr., Suite 370
Sacramento, CA. 95833
(916)568-4802

ON: Contract No. DACA05-92-D-0040, Delivery Order 19
JEG Project No. 27-H103-19, Building 659, Tooele Army Depot, Tooele, Utah

ATTACHED ARE 1 ENCLOSURE 1 PRINTS OF EACH WE RELEASE THEM FOR:

CONSTRUCTION _____ PURCHASE _____ APPROVAL _____

FABRICATION _____ DESIGN _____ YOUR FILE X

ENCL NO.	DRAWING OR SPEC NUMBER	REV.	DESCRIPTION	DATE
1.		0	Weekly Field and Laboratory QC Report for Building 659 PCB Storage Area ~~and Radiochemical Storage Area~~	17 July 96

REMARKS

COPIES TO:
JEG
D. Christensen *
L. Schaleger

Project Files

* Transmittal Only

Weekly Field and Laboratory QC Report
27H10319
Building 659 PCB and Radiochemical Storage Area

This report is submitted to satisfy the requirements of the three-phase quality control process. The process would ordinarily call for daily quality control reports (DQSR) and weekly quality control summary reports (QCSR). However, as discussed in the site-specific Quality Control Project Plan, due to the limited field activities for this project, a single QC report consisting of copies of the daily field log entries and an informal QCSR consisting of a summary of each field task or definable feature of work (DFW) is to be submitted at the end of field work in lieu of a weekly submittal.

This report covers field activities for the duration of the project field activities, 4 June through 14 June 1996. The following DFWs are addressed:

- Collection of PCB samples
- Laboratory analysis of PCB samples
- Radiological field survey
- Collection of radiological samples
- Laboratory analysis of radiological samples

Collection of PCB Samples

The preparatory phase meeting minutes of 31 May 1996 are attached (*Attachment 1*). The meeting consisted of a conference call with conferees representing USACE, TEAD and Jacobs in attendance. Both radiological and PCB sampling efforts were discussed; the radiological subcontractor, Brian Rothman, was also included.

The initial phase meeting was held at the site on 4 June 1996 and was conducted by the Project Manager, Joel Kushins. The minutes are enclosed as *Attachment 2*. Field followup activities are documented in the field log notes of Dayton Busch, senior field technician (*Attachment 3*).

The field notes confirm that the PCB sampling effort, which involved the coring and chipping out of concrete floor samples as well as wood and brick samples, proceeded essentially as described in the Sampling and Analysis Plan. Deviations involved the collection of a larger number of QA/QC samples, 28 rather than the 5 targeted in the plan, in order to support the results of the analysis of composited samples.

Six rather than five QA splits were sent to the Army's South Pacific Division Laboratory for confirmatory analysis. Six pairs of discrete field duplicate pairs were analyzed as well as five matrix spike/matrix spike duplicate pairs. Equipment rinsates and ambient blanks were analyzed according to plan. QA/QC in the form of field duplicates and matrix spike/spike duplicate pairs is required on each matrix at a rate of 10%. The addition of a new matrix, brick from the wall separating the north and south portions of the building, necessitated some fo the additional QC.

Copies of the chains-of-custody accompanying samples to the laboratories are included as *Attachment 4*.

Laboratory Analysis of PCB Samples

Samples were delivered to CKY Laboratories, Torrance, California, for PCB analysis. Confirmation QA samples (10% of the total) were sent to the Army's South Pacific Division Laboratory, Sausalito, California.

Minutes of the Preparatory Phase meeting between Jacobs Project Chemist, Larry Schaleger, and CKY Laboratory Director, Kam Pang, and Project Manager, Kennette Pimentel, are included as *Attachment 5*. This laboratory was tasked to undertake a detailed compositing scheme as discussed in "Verification of PCB Spill Cleanup by Sampling and Analysis", EPA-560/5-85-026, August, 1985. Special field and laboratory instructions are appended (*Attachment 6*).

Initial phase discussions between Ms. Pimentel and Dr. Schaleger were held on an every-other-day basis. Two questions arose in the course of these calls. The analytical protocol called for discrete (individual) samples to be analyzed only in the event that the results of the analysis of composites indicated the possibility (rather than the certainty) that the closure limit of 25 ppm might be exceeded. Since these results would not be available prior to exceeding the maximum holding time for extraction, the decision was made to proceed with the extractions of the discrete samples. The second issue pertained to the extraction of wood samples. The thimbles for extraction could only hold 5 g rather than the required mass of 10 g of wood. However by reducing the number of samples per composite, it was determined that the required detection limits could be met.

Radiological Field Survey/Collection of Radiological Samples

The initial phase meeting was held at the site on 4 June 1996 and was conducted by the Project Manager, Joel Kushins. Attendees included Beth Pomatto, supervisor of the radiological phase of work and radiological subcontractor, Brian Rothman. A field audit was conducted on 11 June 1996 by J.B. Baird, Jacobs Certified Health Physicist. This followup phase meeting is documented in minutes presented in *Attachment 7*.

The execution and results of the radiological field survey are included in the field log, a copy of which is included as *Attachment 8*. Copies of the chains-of-custody accompanying the samples to the subcontracting laboratory, Lockheed Analytical Services, Las Vagas, Nevada, as well as the QA Laboratory, Armstrong Laboratory, Brooks AFB, Texas, are enclosed (*Attachment 9*).

The following samples were collected and submitted for laboratory analysis:

Tritium/Carbon-14:	11 solids/2 field duplicates/3 QA splits
	14 surface wipes/1 field duplicate/3 QA splits
Gamma spectroscopy:	11 solids/2 field duplicates/3 QA splits
	7 surface wipes/1 field duplicate/1 QA split

Deviations from the Work Plan are detailed in *Attachment 10*. The most significant deviation involved surveying the floors beneath the shelves in grids of 1 meter rather than 3 meter squares as described in the Work Plan. This measure was implemented to simplify the process and avoid confusion.

Laboratory Analysis of Radiological Samples

Minutes of the Preparatory Phase meeting with Lockheed are appended (*Attachment 11*). Followup discussions with the Lockhhed Project Manager, Marty Dillon, brought up the fact that the wipe samples for tritium/carbon-14 analysis were extremely oily/dirty and would have to be diluted to compensate for matrix effects. He was informed to proceed with the analysis since the closure criteria for this pair of weak beta emitters were fairly high and likely to be achieved even with the higher detection limits resulting from dilution.

ATTACHMENT ONE

Schaleger, Larry

From: Kushins, Joel
To: Baird, J.B.; Zike, Bruce; Schaleger, Larry; Sextro, Robert; jesparza; lschmittner
Cc: Pomatto, Christina; Hess, Rachel; Busch, Dayton; Christensen, Doug; Duerr, Del; Nuss, Linda; Jayanth, Vijaya; delskamp; mmackenzie
Subject: DO 019, Preparatory Phase Meeting Minutes of 30 May 1996
Date: Friday, May 31, 1996 10:39AM

Preparatory Phase Meeting / Conference Call Minutes of Thursday, May 30 (2:00 pm, PDT) for Tooele Building 659 Closure

1) INTRODUCTIONS
o J. Kushins introduced the attendees:
+ USACE: Les Schmittner and John Esparza
+ TEAD: Larry McFarland
+ JEG: Bob Sextro, Joel Kushins, Larry Schaleger, J.B. Baird, Bruce Zike
+ RRS: Brian Rothman (retained as subcontractor for continuity on project)

2) REVIEW OF STATEMENT OF WORK (SOW)
o J. Kushins provided an overview of the SOW objectives.
o J. Kushins provided an overview of the three-phase quality control process (preparatory, initial, and follow-up phases)

3) DEFINABLE FEATURES OF WORK (DFWS) AND ASSOCIATED ASSESSMENT ACTIVITIES
o J. Kushins discussed the definable features of work to be performed under the QAPP/FSP scope of work and their relationship to the three-phase quality control process, they are:
+ Collection of PCB samples
+ Radiological field survey
+ Collection of radiological samples
+ Laboratory analysis of PCB and radiological samples
+ Verification and evaluation of laboratory analytical results
+ Comparison of laboratory analytical results to established clean closure criteria
+ Submittal of requisite deliverables

4) PROJECT ORGANIZATION/PROJECT COORDINATION LINES OF AUTHORITY; ROLE OF QA; ROLE OF H/S
o J. Kushins presented a revised organization chart and explained the difference between Sr. Health Physicist line authority and "contract" line authority for this project.
+ Field Supervisor and Site Safety - C. Beth Pomatto
+ Field Operations - Dayton Busch
+ Radiological Services - Brian Rothman
o L. Schaleger briefly discussed QA/QC roles and continued sample tracking.

5) FIELD/SAMPLING PLAN AND WORK SCHEDULE
o J. Kushins discussed the work schedule from 3 June thru 14 June 96 with the possibility of weekend work.
o J. Kushins discussed the materials and equipment logistics and site access

6) HEALTH AND SAFETY PLAN
o B. Zike briefly discussed H/S roles and tail gate meetings
o J. Kushins discussed the Jacobs Safety Program and our pride for being top in the industry with low work related job injuries.

7) QUALITY ASSURANCE PROJECT PLAN
o L. Schaleger stated PCB closure criteria and data quality objectives will be met (PCB concrete chip/core samples of 25 ppm and PCB wipe samples of 10ug/100 sq cm)
o J.B. Baird stated Rad closure criteria and data quality objectives will be met (Will meet current NUREG requirements (QAPP Table C-3))

8) LABORATORY COORDINATION/DATA MANAGEMENT
o L. Schaleger will coordinate a separate Preparatory Phase meeting w/ the contract laboratories. J. Esparza will be invited to meeting on Monday/ Tuesday, 3/4 June 96.

9) ADMINISTRATIVE ISSUES

o J. Kushins opened dialogue for the following issues and additional action items are listed below (Item 10):

+ Site access and weekend work
+ Waste management (labels and storage)
+ Army Radiation Safety Committee Use Permit requirements

10) ACTION ITEMS

o Identify NRC contact for review of Closure / Decommissioning Report - J. Kushins & L. McFarland
o Expanded phone list for w/ night and weekend phone #'s for distribution at Kickoff meeting - J. Kushins
o Send 2 SAPs (FSP/QAPP) to Evyonne at SPD Lab and confirm schedule for receipt of samples - L. Schaleger
o Establish "fixed point" monument as point of ref. for sample locations - D. Busch & B. Rothman
o Procure authorization to conduct field activities from Army Rad. Safety Com. - J. Kushins & B. Rothman.
o Contact Max Scheiss (801-833-3504) for container labels and approved storage location - D. Busch
o Contact Larry McFarland (801-833-3504) for site access and keys - D. Busch and B. Rothman
o Conduct preparatory phase meeting w/ contract laboratories - L. Schaleger and J. Esparza

cc Larry McFarland via facsimile
Brian Rothman via mail

ATTACHMENT TWO

Schaleger, Larry

From: Kushins, Joel
To: Pomatto, Christina; Baird, J.B.; Hess, Rachel; Zike, Bruce; Busch, Dayton; Christensen, Doug; Duerr, Del; Nuss, Linda; Schaleger, Larry; Sextro, Robert; Jayanth, Vijaya; delskamp; jesparza; lschmittner; mmackenzie; PFeldman
Subject: RE: DO 019, Initial Phase Meeting Minutes of 4 June 1996
Date: Friday, June 07, 1996 2:53PM

Initial Phase Meeting Minutes of Tuesday, 4 June for Tooele Building 659 Closure.
(NOTE: Meeting minutes follow the format of the preparatory phase meeting minutes to document action items completed)

1) INTRODUCTIONS
o J. Kushins introduced the attendees:
+ USACE: Les Schmittner, Carl Cole, and Hans Honerlah
+ TEAD: Larry McFarland, Max Scheiss, and Jay Bishop
+ JEG: Joel Kushins, Bruce Zike, Dayton Busch, and Beth Pomatto
+ RRS: Brian Rothman (retained as subcontractor for continuity on project)

2) REVIEW OF STATEMENT OF WORK (SOW)
o J. Kushins provided an overview of the SOW objectives.

3) DEFINABLE FEATURES OF WORK (DFWS) AND ASSOCIATED ASSESSMENT ACTIVITIES
o J. Kushins presented the sampling plan work to be performed under the QAPP/FSP scope of work.

4) PROJECT ORGANIZATION/PROJECT COORDINATION LINES OF AUTHORITY; ROLE OF QA; ROLE OF H/S
o J. Kushins presented a revised organization chart and explained the difference between Sr. Health Physicist line authority and "contract" line authority for this project.
+ Project Manager - Larry McFarland (TEAD)
+ Project Manager's Point of Contact - Max Scheiss (TEAD - week of 3 June 96)
+ Technical Manager - Les Schmittner (USACE)
+ Project Manager - Joel Kushins (Jacobs)
+ Field Supervisor and Site Safety - C. Beth Pomatto (Jacobs)
+ Senior Field Technician - Dayton Busch (Jacobs)
+ Radiological Services - Brian Rothman
+ Field Technician - Shayne Anderson (Kleinfelder - start 10 June 96)

5) FIELD/SAMPLING PLAN AND WORK SCHEDULE
o J. Kushins discussed the work schedule from 3 June thru 14 June 96 with the possibility of weekend work. Team will work Friday and Saturday w/ Sunday off.

6) HEALTH AND SAFETY PLAN
o B. Zike conducted a health and safety meeting. "Tail gate" meeting will be conducted every morning.

7) QUALITY ASSURANCE PROJECT PLAN
o J. Kushins reiterated the need for an exceptional QA/QC program from the team.

8) LABORATORY COORDINATION/DATA MANAGEMENT
o L. Schaleger conducted separate Preparatory Phase meetings w/ the contract laboratories on 3 and 4 June 96.

9) ADMINISTRATIVE ISSUES
o J. Kushins opened dialogue:
+ Site access and weekend work-key provided to Beth Pomatto. She has responsibility to return to Larry McFarland. Never leave site open and unattended.
+ Waste management (labels and storage)-Max Scheiss provided labels. Never put material into containers w/o label attached first.
+ Army Radiation Safety Committee Use Permit requirements: Dr. Jay Bishop, RPO gave authorization to conduct field activities in the Rad. Storage Area.
+ Bathrooms are available three warehouses north (Bldg. S687R) and open all weekend.
+ Power is available at Bldg. 659.

+ EPA and/or UDEQ most likely will observe sampling on 10 June 96.

10) ACTION ITEMS- (COMPLETED)
o Expanded phone list provided to staff.
+ Cell phone was provided for Field team (#801-550-0382)
o Two (2) SAPs (FSP/QAPP) were sent to Evyonne at SPD Lab
o "Fixed point" were established to ref. sample locations
o Authorization was provided to conduct field activities by Dr. Jay Bishop.
o Max Scheiss provided container labels and approved interim storage at Building 659.
o Larry McFarland (801-833-3504) provided site access key.
o Preparatory phase meetings were conducted with contract laboratories.

cc Larry McFarland via facsimile
Brian Rothman via mail

96

ATTACHMENT THREE

27-4103-49

Date	Activity	Time	Comment
6/4/96	Arrive Tooele, Joel Hotel	0900	Looking for Joel, missed him at hotel, proceed to base
	Arrive Tooele Env. office	0930	Larry McPhanhan off base this week. No JAG personel proceed to Bld. 659
	Arrive Bld. 659	0945	Joel, Hans from Corps, Max from Depot. All together know.
	Begin Exclusion zone set-up	1000	Establish E.R.Z and stage area, move in equipment.
	move desk, chair	1030	from far end of bld. to use, per Corps.
	Begin Site Orientation	1100	Joel conducts meeting 1) Look into cell phone per Joel 2) Pickup drums
	Leave Site	1230	Secure bld 659. All is well.
	Back on site bld 659	1500	Open up, unload supplies. Set up E.R.Z. Grid Bay area
	Begin Grid in P.C.B.	1600	Lay down grid samples

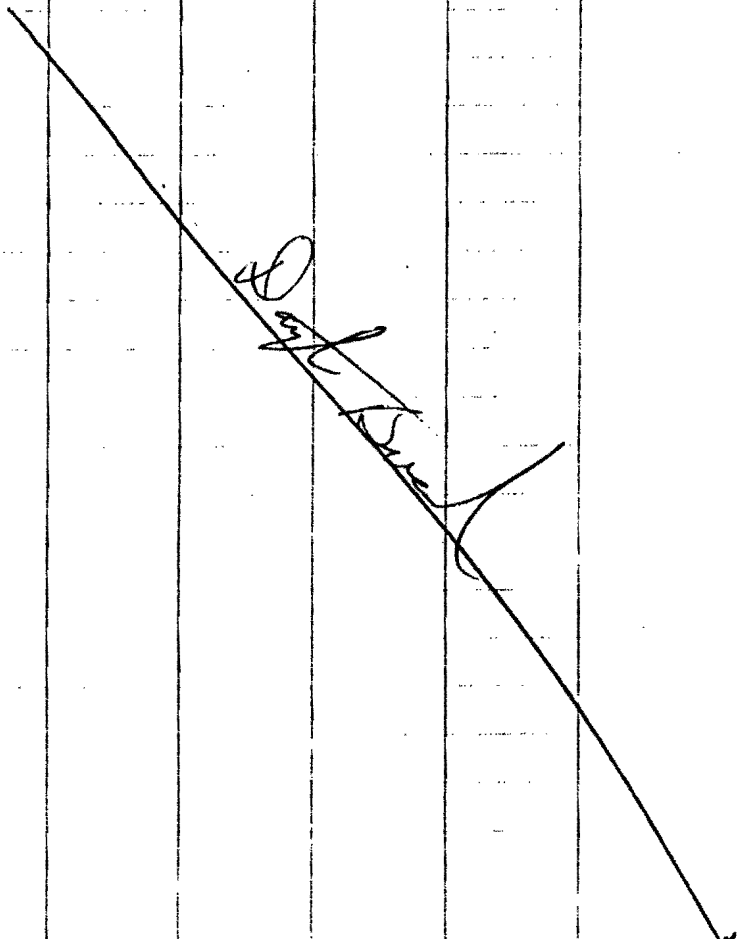
Cont

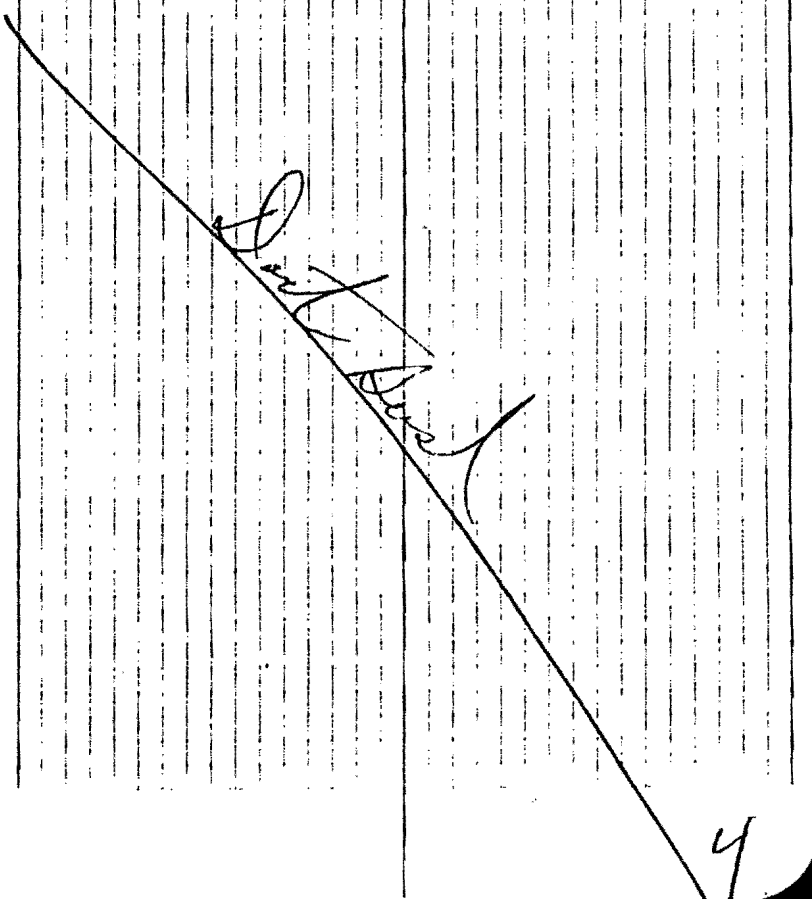
Cont

①

②

DATE ~~#5~~	BLD. 659, Tool Depot Activity	Time	Comment
6/4/96	Exit P.C.B.	1715	Complete Grid Samples, Need to Complete Authorization Locations MEET W/ TH & JOEL, BRIAN, PATTON AND LUCE. GO OVER LOCATION I.D PROTOCOL.
	DEPART SITE	1845	BLD. 659 SECOND - ALL 3 WELL





27-1103-19 TOOELE, ARMY DEPOTS

DATE	ACTIVITY	TIME
6/5/96	ARRIVE SITE	0700
	PREP TO ENTER P.C.D.'s	0725
	EXIT P.C.D. AREA	0830

5 CONT

COMMENT

OPEN BLD. JOEL, HANS, BETH, DAWN, PAYTON

JOEL AND D. FINAL MARK OF P.C.D SAMPLE LOCATION

ALL LOCATION PLACED. FINALIZE LIST OF ERANDS.

1. ISO ALCOHOL 2 ✓
2. KLEENFIELDER - GOOLEAR ✓ ON CALL ENG 505-298-4224
   TC-99 / 100 PAT) KEN) BLANCET(2) ✓
3. PICKUP CONE WITH C.O.C.'S CALL BRENDA AND DEL ✓ CALL SCOTT
4. HERTZ - PHONE ✓ CELLONE ✓
5.) ~~DUCTAS~~ ~~HOTEL~~ ✓
6.) C. COCTAIL ✓ - KLEENFIELDER ✓
7. HARDWARE - ORANGE P. MAL ✓ CHALK ✓ MARKING CHALK ✓

NH R-3~~5/00~~ S. ~~/80~~ E

6

TOOLE ARMY DEPOT, BLD 659

27H10319 AC.O.E

DATE	ACTIVITY	TIME	COMMENTS
6/5/96	RETURN FROM SALT LAKE	1230	All supplies picked up. Ready to cut samples, Joel onsite. Final walkthru All is set, ready. Finish cal on instr.
	JOEL DEPARTS	1300	
	DEPART SITE, LOCK UP	1330	Goto clients bld. H.Q., goto lunch.
	RETURN TO BLD. 659	1415	Ready to survey and cut. Setup core unit. 2½ bit
	START CUTTING CONC. P.C.B. AREA	1500	Move from C.R.2 to P.C.B. Area. Decon bit each hole to minimize cross contamination
	EXIT P.C.B. AREA	1600	& Clean up area, turn off equip, unplug, prepare to leave. Secure site, lock BLD. Leave base.

[signature] [signature]

101

TOOLE ARMY DEPOT BLD. 659

DATE	ACTIVITY	TIME
6/6/96	ARRIVE BLD. 659	0730
	CALL OFFICE	0830
	PREPARE TO ENTER P.C.D. AREA	0915
	~~1115~~	
	EXIT BLD. 659	1145
	RETURN FROM LUNCH	1230
	CONTINUE CONT'L	1300
	CONT	

27-H103-19 ACOE

COMMENTS

UNLOCK BLD 659, HAND'S DAVIS BETH DAYTON ON SITE. CONDUCT TAILGATE. WORK ON RACEWAY REPORTS FOR CONTRACT

SPEAK W/ LARRY S. ABOUT C.O.C.'S. HE WILL FOLLOW UP ON REQUESTS FOR LADDERS AND BLANKS.

CORE ANOTHER 10 SAMPLE LOCATION TO 3/4" X 2.5" TO BE ABLE TO BREAK OUT WAFERS.

LOCK UP, ALL OF US GO TO LUNCH

CALL SAC ABOUT LADDERS, AND C.O.C.'S. TALK WITH LARRY S. DOWN TO LAST COUPLE OF

CONT

Toole Army Depot BLD. 659

Date	Activity	Time
6/6/96	Max From Depot	1530
	Completed Cones	1630

2T-H103-19 A.C.O.E.

Comments

Comes by, O.K. to work this week, He has notified cops about us. Should be no problems we also gave him our cell phone #, just in case.

For P.C.B.s - 10 + 4 Q.C.
Close up BLD. 659 and lock.
All is well

TOOELE ARMY DEPOT BLD.659

DATE	ACTIVITY	TIME
6/7/96	ARRIVE BLD.659	0730
	SECURE BLD.659	1145
	OPEN BLD.659	1230
	ENTER D.C.D. AREA	1500
	DECON CONEX UNIT	1545
	LEAVE SITE TO RETURN	1600
	TASK COMPLETE	1730

Daniel Dent

27-H103-19 ACOE

COMMENTS

OPEN UP, ALL IS WELL. DIGITAL DAY. I WILL BE WORKING IN RAD AREA TODAY. NO D.C.D. WORK.

GO TO LUNCH, NO PROBLEMS

CONTINUE W/ RAD SURVEY.

CUT DUPLICATE SAMPLE LOCATION

COMPLETE DECON, EXIT D.C.D. AREA.

EQUIPMENT PICK UP R.I. H2O

RETURN CONEX UNIT. NO H2O AVAILABLE.

Daniel Dent

Tooele Army Depot DLA0659

Date	Activity	Time
6/8/96	Arrive site	0830
	Complete "E" section	1330
	Second DLA 0659	1400

Doug Bush

15

27-H103-19 ACOE

Comments

Open DLA 659. All is OK
Begin PCB Sampling-QC
Sample Composite Group "E"
Decon Chisel/Equip between
Each Sample.

4oz Jar x 4 Add'l, Double Bubble
Placed in Cooler w/Ice and
Custody Seal on Cooler. Thermometer
Verify 4°C Storage.
Leave For Day. All is well.

Doug Bush

16

Tooele Army Depot. DAD659

DATE	ACTIVITY	TIME	COMMENTS
6/10/96	Arrive DAD659	0720	Shane, From Kleinfelder on site. North Gate A-S Drive
	Proceed w/ Survey	0900	North and Shane about Labs Questions.
	Talk w/Harry, Joel	0910	
	Matt From Kleinfelder Calls w/ H_2O source. For ASTM Type II.	1000	Mark - Mountain State Anal. 973-0050 1645 W 2200 S. 2100 S. Magna Exit (R) (L)
	Contact Cicy about Supplies	1030	Ask to send Cert. for containers, send Cookies to Hotel.
	Leave For Mountain State	1130	To Pick up Type II Reagent H_2O

27-11103-19 ACOE

106

17

15

Tooele Army Depot, Bld 659

Date	Activity	Time
6/10/96	Return From Run	1400
	Prepare To Sample	1430
	Poor Equipment Rinse	1630
	Leave Site For Day	1730

Daily Dual

2-11103-19 ACOE

Comments

2 Gals Type II H2O. No Ice Pepper.

Composite Group "F", will Document True Locations and Sample ID's After Sample Event.

For 10 Days Sample Event.

Sample Secure, Bld 659 Secure

Daily Dual

TOOLE ARMY DEPOT. DHD 659

DATE	ACTIVITY	TIME
6/11/96	LEAVE HOTEL	0630
	ARRIVE DHD 659	0830
	COMPLETE COMP G'	1130
	SHANE IS BACK, W/LOWELL	1230
	BACK TO SAMPLING	1245

27.11103.19 ACOE

COMMENTS

TO PICK UP CORE UNIT.

PREPARE TO SAMPLE. COMP G'

SEND SHANE TO LUNCH, STAY ON SITE IN CASE OF AGENCY. ARRIVAL.

SIT DOWN AND EAT.

FLOYD NICHOLAS

Tooele Army Depot. Bld. 659

27-H103-19 ACOE

Date WED	Activity	Time	Comments
6/12/96	Arrive Bld. 659	0715	Open Bld. 659.
	Depot/Corps/EPA. Reps on Site	0730	Larry McFarland, Hans, Richard Graham, Floyd Nichols. Joel conducts meeting. Basically goes over work plan and demonstrate each activity to visitors.
	Second Gathering _ EPA	0900	Richard Graham joins me in P.C.D. Area. Audits my P.C.D. Sampling. Richard is very satisified w/ sampling event, and location.
	Exit P.C.D. Zone	0950	
	Visitors move on to Rad Area	1010	Meeting moves on to Rad. Concerns. See Rad Log.
	Re-Ice Samples	1030	To maintain 4°C on samples. Work on C.O.C's.
	V.I.P.s Leave	1145	Everyone is very satisfied w/ Jacobs efforts. Good Job!
	Lunch	1200	Secure Bld. 659.

Cont.

Cont.

TOOELE ARMY DEPOT 7/06/09

DATE	ACTIVITY	TIME
6/12/06 CONT	RETURN FROM LOVELL	1300
	COMPLETE D.C.D. SAMPLING	1605
	DOWN LAST OF E.D.	1650
	DEPART SITE	1750

10

25

27/1103-19 ACOE

COMMENTS

RESUME RETRIEVAL OF SAMPLING, COMPOSITE GROUP D, AND E.

LIST OF SAMPLES TAKEN. DRUM AND BOX LAST E.D. ROCK SAMPLE 12. GROUPS TO I.D. FOR SHIPMENT TOMORROW. W/SPLITS. SPOIL. LAST EQUIPMENT BLANKS. CONTAINERIZE PERSONAL WASTE AND LANDFILL PICKUP SITE. TRUCK 1210 657 ALL ISSUED

26

TOOELE ARMY DEPOT BLD 659

27 A103.19 A.C.OE

DATE	ACTIVITY	TIME
6/13/96	DEPART HOTEL	0600
	ARRIVE BLD.659	0700
	TASKS (1)	0740
	CALL SACRAMENTO	0900
	LUNCH	1200
	RETURN FROM LUNCH	1230
	GO TO STORE FOR ICE	1425
	RETURN / STORE	1530

CONT.

COMMENTS

FLUSH TRUCK, PICKUP FED-X LABELS AT AIRPORT.
TAILGATE MEETING ON WHAT NEEDS TO GET DONE AND WHO WILL DO WHAT.
I'M PACKING SAMPLES FOR C.K.Y. AND SPAL. LAB.
SHANE IS PATCHING CORES AND SAMPLING WITH BETH RMSA.
BRIEF JOEL, K WILLIAMS ON LAB QUESTIONS. STATUS IS GOOD TO FINISH 6/14/96, NOT WERE GONNA BE BUSY.
BETH STAYS TO WORK, I WILL BRING FOOD FOR HER.
CONTINUE ON TASKS (1) PROGRESS GOOD, PATCH WALL.
READY FOR FINAL PACK OF P.C.B. SAMPLES.
COMPLETE PACKING W/ ICE OF P.C.B. SAMPLES.

CONT.

TOOELE ARMY DEPOT, BLD 659

DATE	ACTIVITY	TIME
6/13/96 (CON'T)	SHANE TO LEAVE	1630
	BRTHAND I. ✓ LOCATIONS	1700
	*DRUM PICKED UP →	
	CHECK COMPLETE.	1820
	LEAVE FOR DAY.	1830

211

27H10319 ACCT

COMMENTS

HE WILL DELIVER:
2 - COOLERS FOR C.K.Y.
1 - FOR SPOOL LAB.
TO FED-X, AND RETURN CORE UNIT. TO RENTAL PLACE, HIS TOTAL IS HOUR OF HELP. BEEN A BIG HELP.
MEASURE/RECORD ALL SAMPLE LOCATIONS, BOTH P.C.B. AND RAD. S.P. ON MAPS. AND BACK GROUND LOCATIONS. *MAX FROM BASE PICKUP P.C.B. DRUMS ALL ACCOUNTED FOR. RESTORATION OF CORE LOCATIONS LOOKS GOOD.

TOOELE ARMY DEPOT. BLDG59

DATE	ACTIVITY	TIME
6/14/96	DEPART HOTEL	0610
	ARRIVE SITE BLDG59	0720
	PACK RMSA SAMPLES	0740
	FINAL LOAD/INSPECT BLDG LOCK AND LEAVE	1220

CONT

27 HIR319 ACOF

COMMENTS

DRIVE TO BASE. PICK UP LAST SUPPLIES ON WAY IN. JUST MEMBERS WITH TODAY, HANS LEFT, NORMAN ON SHARE. BASICALLY JUST PACK, RMSA SAMPLES, LOAD, PICKUP.

* LARRY MCFARLAND MADE ARRANGEMENTS FOR US TO DROP KEYS W/ FIRE DEPT. WHEN WE LEAVE BECAUSE HE WILL NOT BE HERE.

** ONLY P.C.B DRUMS, 1-LOCAL OF DECON WASTE WATER, 1-PPE 55GAL WERE PICKUP, EVERYONE AGREED W/D. THAT RMSA WASTE SHOULD STAY INSIDE R.M.S.A.

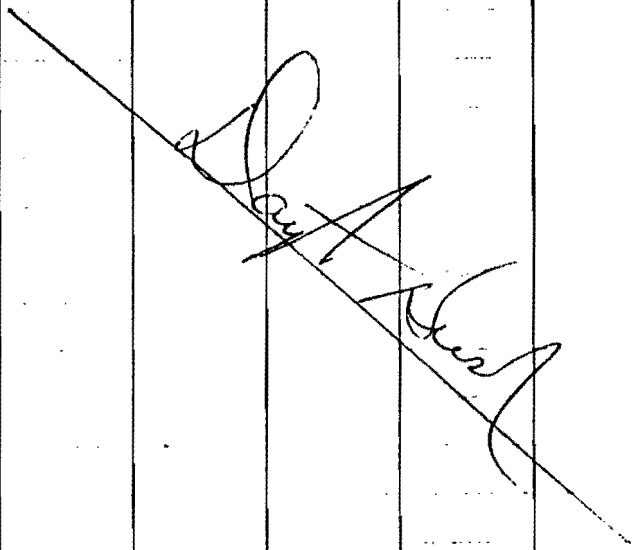
1 COOLER FOR LOCKHEED, 1 FOR SPDL - HAMSTROWL.

LEAVE BLDG 659 JUST AS IT WAS, READ FOR F.D.

CONT

TOOELE ARMY DEPOT BLD659

DATE	ACTIVITY	TIME	COMMENTS
6/14/96 (CONT)	DROP KEYS N.N.D.	1230	
	LUNCH	1300	
	AT AIRPORT	1350	
	AT CELL STORE	1410	
	RETURN CAR	1505	



27/10319 M.COE

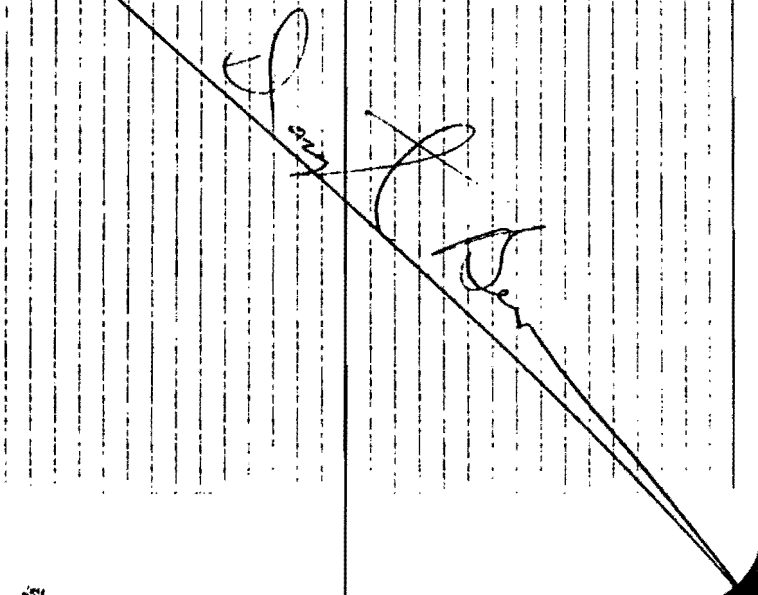
O.K. OUR WORK IS NOW NEAR, TO AIRPORT

FED X SAMPLES HEAD FOR CELL PHONE STORE

RETURN PHONE, TO AIRPORT

THATS IT. JOB CELL DONE

ALL STATEMENTS PER TRUE AND ACCTH.



ATTACHMENT FOUR

JACOBS ENGINEERING GROUP INC.
251 SOUTH LAKE AVENUE, PASADENA, CALIFORNIA 91101-3063
TELEPHONE (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TO-A1001

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H10319
WBS CODE:

LABORATORY NAME & ADDRESS: CKY, Inc.
630 Maple Ave.
Torrance, CA 90503

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	[illegible]	NUMBER OF CONTAINERS	CONTAINER TYPE AND SIZE	PRESERVATIVE	MATRIX	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT
TO-A00001	6/11/96	1324	DD	1	~~4oz.~~ 8oz glass bottle	NONE	~~WC~~ SR	SW8080 PCB; Moisture		
TO-A00002	6/12/96	1030	DD	1	~~4oz~~ 8oz glass bottle	NONE	SR	SW8080 PCB;		
TO-A00003	6/12/96	0930	DD	1	~~4oz~~ 8oz glass bottle	NONE	SR	SW 8080PCB;		
TO-A00004	6/12/96	0900	DD	1	~~4oz~~ 8oz glass bottle	NONE	SR	SW8080PCB;		
TO-A00005	6/12/96	0910	DD	1	~~4oz~~ 8oz glass bottle	NONE	SR	SW8080PCB;		
TO-A00006	6/11/96	1324	DD	1	~~4oz~~ 8oz glass bottle	NONE	SR	SW8080 PCB; Moisture		

NoThing Follows

COMMENTS: Composite -01 thru -05. Analyze -06 as a discrete sample. (Comp Group 'A'). Run MS/MSD and Moisture Content on Composite.

COLLECTED & RELEASED BY [signature]	DATE 6/12/96	TIME 1600	TURNAROUND TIME		
RECEIVED BY FedEx	DATE 6/12/96	TIME 1600	RELINQUISHED BY	DATE / /	TIME :
RECORD RETURNED BY	DATE / /	TIME :	SHIPPING NUMBER: 9630795926		

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	[illegible]	DEPTH TO BEGIN / END	[illegible] CODE
B659NPCB / B659N-WP-SR-01		0.0 / .25	NI
B659NPCB / B659N-WP-SR-02		0.0 / .25	NI
B659NPCB / B659N-WP-SR-03		0.0 / .25	NI
B659NPCB / B659N-WP-SR-04		0.0 / .25	NI
B659NPCB / B659N-WP-SR-05		0.0 / .25	NI
B659N PCB / B659N-WP-SR-01D		----	FD1

SAMPLING COMMENTS:
Split -06; send split to SPDL.

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92GD0097MISC

JE JACOBS ENGINEERING GROUP INC.
251 S. Lake Ave., Pasadena, California 91101-3065
Telephone: (213) 681-3781 (818) 449-2171

CHAIN OF CUSTODY RECORD TO-A1002

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27-H10319
WBS CODE:

LABORATORY NAME & ADDRESS: CKY Inc
630 Maple Ave
Torrance, CA 90503

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLE MATRIX	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE TYPE	LAB NUMBER	ANALYSES REQUESTED	MS/MSD	CONDITION ON RECEIPT
TO-A00010	6/12/96	1310	DO	1	Hot. 802 glass bottle	NONE	WC SR	SW8080 PCB		
TO-A00011	6/12/96	1320	DO	1			SR	SW8080 PCB		
TO-A00012	6/12/96	1327	DO	1			SR	SW8080 PCB		
TO-A00013	6/12/96	1333	DO	1			SR	SW8080 PCB		
								Do not Hold. To follows		

COMMENTS: Composite -10 thru -13. (Comp Group 'B').

COLLECTED / RELEASED BY	DATE	TIME	TURNAROUND TIME		
Dayl Bisel	6/12/96	16:00			
RECEIVED BY: FED-X	DATE 6/12/96	TIME 16:00	RELINQUISHED BY	DATE / /	TIME :
RECORD RETURNED BY	DATE / /	TIME :			
			SHIPPING NUMBER: 963079553O		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92GD0097MISC

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	FILE	DEPTH FROM BEGIN	DEPTH FROM END	QC CODE
B659NPCB		0.0		
B659N-WP-SR-06		.25		NI
B659NPCB		0.0		
B659N-WP-SR-07		.25		NI
B659NPCB		0.0		
B659N-WP-SR-08		.25		NI
B659NPCB		0.0		
B659N-WP-SR-09		.25		NI

SAMPLING COMMENTS:
HOT
5/2022

JACOBS ENGINEERING GROUP INC.
251 S. [illegible] AVE., PASADENA, CALIFORNIA 91101-3083
TELEPHONE (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TO-A1003

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H10319
WBS CODE:

LABORATORY NAME & ADDRESS: CKY, Inc.
630 maple Ave
Torrance, CA 90503

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLE MATRIX	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	LAB CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT
TO-A00020	6/11/96	1340	DO	1	~~402~~ 8oz Glass Bottle	NONE	WC	SW8080PCB		
TO-A00021	6/12/96	1200	DO	1			WC	SW8080PCB		
TO-A00022	6/12/96	1115	DO	1			WC	SW8080PCB		
TO-A00023	6/12/96	1130	DO	1			WC	SW8080PCB		
TO-A00024	6/11/96	1340	DO	1			WC	SW8080PCB; Moisture		

NOTHING Follows

COMMENTS: Composite -20 thru -23. Analyze -24 as a discrete sample (Comp Group 'C'). Run MS/MSD + Moisture Content on Composite.

COLLECTED & RELEASED BY: Dayl Deal	DATE 6/12/96	TIME 1600	TURNAROUND TIME		
RECEIVED BY: FED-X	DATE 6/12/96	TIME 1600	RELINQUISHED BY	DATE / /	TIME :
RECORD RETURNED BY	DATE / /	TIME			
			SHIPPING NUMBER: 7630795926		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

923D0007MISC

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	SAMPLE TYPE	DEPTH FEET BEGIN	DEPTH FEET END	QC CODE
B659N PCB				
B659N-WP-SR-10				NL
B659N PCB				
B659N-WP-SR-11				NL
B659N PCB				
B659N-WP-SR-12				NL
B659N PCB				
B659N-WP-SR-13				NL
B659N PCB				
B659N WP-SR-100				FD

SAMPLING COMMENTS: Split -24 (10D). Send split to SPDL.
LOT#

5

JE JACOBS ENGINEERING GROUP INC.
251 S. Lake Ave., PASADENA, CALIFORNIA 91101-3063
TELEPHONE (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TD-A1004

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H10319
WBS CODE:

LABORATORY NAME & ADDRESS: CKY, Inc. 630 Maple Ave. Torrance CA 90503

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT
TD-A00030	6/11/96	1355	DD	1	~~4oz~~ 8oz glass bottle	NONE	BC	SW8080PCB		
TD-A00031	6/12/96	1100	DD		~~4oz~~ 8oz glass bottle	NONE	BC	SW8080PCB		
TD-A00032	6/11/96	1355	DD	1	~~4oz~~ 8oz glass bottle	NONE	BC	SW8080PCB; Moisture		

Nothing Follows

COMMENTS: Composite group 'D' includes -30 and -31. Analyze -32 as a discrete sample. Run MS/MSD and Moisture Content on Composite.

	DATE	TIME		DATE	TIME
COLLECTED & RELEASED BY: Dwight Beal	6/12/96	1600	TURNAROUND TIME		
RECEIVED BY: FED-X	6/12/96	1600	RELINQUISHED BY	/ /	:
RECORD RETURNED BY	/ /	:	SHIPPING NUMBER: 9630795930		

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	SAMPLE TYPE	DEPTH BEGIN / END	QC CODE
B659N PCB / B659N-WP-BC-14		0.0 / .25	N1
B659N PCB / B659N-WP-BC-15		0.0 / .25	N1
B659N PCB / B659N-WP-BC-14D		0.0 / .25	FD1

SAMPLING COMMENTS: Split -32 (-14D). Send split to SPDL under separate COC. LoT# 531 2022

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92GD0097MISC

5

JACOBS ENGINEERING GROUP INC.
251 S. LAKE AVE., PASADENA, CALIFORNIA 91101-3063
TELEPHONE (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TO-A1005

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H10319
WBS CODE:

LABORATORY NAME & ADDRESS: CKY, Inc.
630 Maple Ave.
Torrance CA 90503

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLE MATRIX	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	DATED CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT
TO-A00040	6/5/96	1115	DO	1	4oz glass bottles	NONE	CC	SW8080 PCB		
TO-A00041	6/5/96	1100	DO	1						
TO-A00042	6/5/96	10:30	DO	1						
TO-A00043	6/5/96	1130	DO	1						
TO-A00044	6/5/96	1045	DO	1						
TO-A00045	6/5/96	1145	DO	1						
TO-A00046	6/5/96	1150	DO	1						
TO-A00047	6/5/96	1200	DO	1						
TO-A00048	6/5/96	1210	DO	1						

COMMENTS: Composite Group 'E' includes -40 thru -49. Run MS/MSD and moisture content on composite.

COLLECTED & RELEASED BY: David Rose	DATE 6/12/96	TIME 1600	TURNAROUND TIME		
RECEIVED BY: FED-X	DATE 6/12/96	TIME 16:00	RELINQUISHED BY	DATE / /	TIME :
RECORD RETURNED BY	DATE / /	TIME :			
			SHIPPING NUMBER: 963079592 6		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92-GD0097/MISC

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	SAMPLE TYPE	DEPTH BEGIN	DEPTH END	QC CODE
B659NPCB B659N-FP-CC-16		0.0	.25	NI
B659NPCB B659N-FP-CC-17		0.0	.25	NI
B659NPCB B659N-FP-CC-18		0.0	.25	NI
B659NPCB B659N-FP-CC-19		0.0	.25	NI
B659NPCB B659N-FP-CC-20		0.0	.25	NI
B659NPCB B659N-FP-CC-21		0.0	.25	NI
B659NPCB B659N-FP-CC-22		0.0	.25	NI
B659NPCB B659N-FP-CC-23		0.0	.25	NI
B659NPCB B659N-FP-CC-24		0.0	.25	NI

SAMPLING COMMENTS:
LOT # JAN 5 3 1 2022

12

JACOBS ENGINEERING GROUP INC.
251 S. LAKE AVE., PASADENA, CALIFORNIA 91101-3063
TELEPHONE (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TO-A1006

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 2MH10319
WBS CODE:

LABORATORY NAME & ADDRESS: CKY, INC.
630 Maple Ave
Torrance, CA 90503

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLE MATRIX	NUMBER OF CONTAINERS	CONTAINER TYPE AND VOLUME	PRESERVATIVE	FILTERED	ANALYSES REQUESTED	MS/MSD	CONDITION ON RECEIPT
TO-A1006-49	6/8/06	1215	DO	1	4oz Glass bottle	NONE	CC	SW8080PCB		
TO-A1006-50	6/8/06	1215	DO	1	4oz Glass bottle	NONE	CC	SW8080PCB; Moisture		

WOTH WC Follows

COMMENTS: -49 is part of Composite Group 'E'. Analyze -50 as a discrete sample.

COLLECTED & RELEASED BY: Wayne Rival	DATE 6/12/06	TIME 16:00	TURNAROUND TIME		
RECEIVED BY: FedEx	DATE 6/12/06	TIME 1600	RELINQUISHED BY	DATE / /	TIME :
RECORD RETURNED BY	DATE / /	TIME :			
			SHIPPING NUMBER: 963079592G		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92G0097MISC

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	SAMPLE TYPE	DEPTH FEET BEGIN / END	QC CODE
B659NPCB		00	
B659N-FP-CC-25		.25	N1
B659NPCB		00	
B659N-FP-CC-250		.25	FD

SAMPLING COMMENTS: Split -50 (16D). Send split to SPDL.
Lot # 5312022

JACOBS ENGINEERING GROUP INC.
251 S. Lake Ave., Pasadena, California 91101-3063
Telephone (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TO-A1007

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H10319
WBS CODE:

LABORATORY NAME & ADDRESS: CKY, INC.
630 Maple Ave.
Torrance, CA 90503

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLE MATRIX	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE USED	SAMPLE CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT
TO-A00070	6/10/96	1445	OO	1	4oz glass bottle	NONE	CC	SW8080 PCB		
TO-A00071	6/10/96	1440	OO	1						
TO-A00072	6/10/96	1430	OO	1						
TO-A00073	6/10/96	1500	OO	1						
TO-A00074	6/10/96	1505	OO	1						
TO-A00075	6/10/96	1435	OO	1						
TO-A00076	6/10/96	1510	OO	1						
TO-A00077	6/10/96	1055 ~~1510~~	OO	1						
TO-A00078	6/10/96	1515	OO	1						

COMMENTS: Composite Group 'F' includes -70 thru -79.

COLLECTED & RELEASED BY: Dayt. Rural	DATE 6/12/96	TIME 16:00	TURNAROUND TIME		
RECEIVED BY: FED-X	DATE 6/12/96	TIME 16:00	RELINQUISHED BY	DATE / /	TIME :
RECORD RETURNED BY	DATE / /	TIME :			
			SHIPPING NUMBER: 963029595 30		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92QD0097MISC

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	SAMPLE MATRIX	DEPTH (FT) BEGIN	DEPTH (FT) END	QC CODE
B659N PCB B659N-FP-CC-26				NI
B659N PCB B659N-FP-CC-27				NI
B659N PCB B659N-FP-CC-28				NI
B659N PCB B659N-FP-CC-29				NI
B659N PCB B659N-FP-CC-30				NI
B659N PCB B659N-FP-CC-31				NI
B659N PCB B659N-FP-CC-32				NI
B659N PCB B659N-FP-CC-33				NI
B659N PCB B659N-FP-CC-34				NI

SAMPLING COMMENTS:
LOT # 531 2022

122

JE JACO[illegible] ENGINEERING GROUP INC.
251 S. [illegible] AVE., PASADENA, CALIFORNIA 91101-3063
TELEPHONE (213)681-3781 (818)449-2171

CHAIN OF CU[illegible]ODY RECORD TO-A1008

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H10319
WBS CODE:

LABORATORY NAME & ADDRESS: CKY, Inc.
630 Maple Ave
Torrance, CA 90503

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT
TO-A00079	6/10/96	1545	DB		4oz glass bottle	NONE	CL	SW8080PCB		
TO-A00080	6/10/96	1500	DD	1	4oz glass bottle	NONE	CL	SW8080PCB; Moisture		

NOT HOLD Follow

COMMENTS: -79 is part of Composite Group 'F'. Analyze -80 as a discrete sample.

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
[signature]	6/12/96	1600			
RECEIVED BY	**DATE**	**TIME**	**RELINQUISHED BY**	**DATE**	**TIME**
FED-X	6/12/96	16:00		/ /	:
RECORD RETURNED BY	**DATE**	**TIME**			
	/ /	:			

SHIPPING NUMBER: 9630795930

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92GD0097MISC

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	SAMPLE TYPE	DEPTH (FT) BEGIN / END	QC CODE
B659NPCB B659N-FP-CC-35		0.0 .25	N1
B659NPCB B659N-FP-CC-[illegible] 290		0.0 .25	FD

SAMPLING COMMENTS: Split -80 (26D). Send split to SPDL.
Lot # 532022

123

JACOBS ENGINEERING GROUP INC.
251 S. [illegible] AVE., PASADENA, CALIFORNIA 91101-3083
TELEPHONE: (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TO-A1009

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H110319
WBS CODE:

LABORATORY NAME & ADDRESS: CKY, INC.
630 Maple Ave.
Torrance, CA 90503

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLE TYPE	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT
TO-A00100	6/11/96	0930	DO	1	8oz glass bottle	NONE	CC	SW8080 PCB		
TO-A00101	6/11/96	0956	DO	1	8OZ Glass BOTTLE					
TO-A00102	6/11/96	1001	DO	1						
TO-A00103	6/11/96	1006	DO	1						
TO-A00104	6/11/96	1010	DO	1						
TO-A00105	6/07/96	1520	DO	1						
TO-A00106	6/11/96	1042	DO	1						
TO-A00107	6/11/96	1045	DO	1						
TO-A00108	6/11/96	1033	DO	1						

COMMENTS: Composite Group '6' includes -100 thru -109. Run MS/MSD on Comp and Moisture Content on Composite.

COLLECTED & RELEASED BY: Dwight Beal	DATE 6/12/96	TIME 1600	TURNAROUND TIME		
RECEIVED BY: FED-X	DATE 6/12/96	TIME 1600	RELINQUISHED BY	DATE / /	TIME :
RECORD RETURNED BY	DATE / /	TIME			
			SHIPPING NUMBER: 963079593O		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92JD0087MISC

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	CONTROL	DEPTH BEGIN	DEPTH END	QC CODE
B659NPCB B659N-FP-CC-36		0.0	.25	NI
B659NPCB B659N-FP-CC-37		0.0	.25	NI
B659NPCB B659N-FP-CC-38		0.0	.25	NI
B659NPCB B659N-FP-CC-39		0.0	.25	NI
B659NPCB B659N-FP-CC-40		0.0	.25	NI
B659NPCB B659N-FP-CC-41		0.0	.25	NI
B659NPCB B659N-FP-CC-42		0.0	.25	NI
B659NPCB B659N-FP-CC-43		0.0	.25	NI
B659NPCB B659N-FP-CC-44		0.0	.25	NI

SAMPLING COMMENTS: LOT # 5312022

JACO ENGINEERING GROUP INC.
251 S. Lake Ave., Pasadena, California 91101-3063
Telephone (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TO-A1010

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H10315
WBS CODE:

LABORATORY NAME & ADDRESS: CKY, INC.
630 Maple Ave
Torrance, CA 90303

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLE MATRIX	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	WORK CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT
TO-A0010A	6/11/96	1027	DO	1	8oz 8oz glass bottle	NONE	CC	SW8080PCB		
TO-A0010	6/11	1036		1	8oz		CC	SW8080PCB; Moisture		

Not Hit. Follows

COMMENTS: -109 is part of Composit Group 'G'. Analyze -110 as a discrete sample.

COLLECTED / RELEASED BY: Dayl Duval	DATE 6/12/96	TIME 1000	TURNAROUND TIME		
RECEIVED BY FED-X	DATE 6/13/96	TIME 1600	RELINQUISHED BY	DATE / /	TIME :
RECORD RETURNED BY	DATE / /	TIME :			
			SHIPPING NUMBER: 963079593O		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92GD0087MISC

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	MATRIX	DEPTH (FT) BEGIN	END	QC CODE
B659NPCB				
B659N-FP-CC-45				N1
B659NPCB 44D				
B659N-FP-CC-[illegible]				FD1

SAMPLING COMMENTS: Split -110 (360), Send split to SPDL.
LOT# 5312022

JE JACC[illegible] ENGINEERING GROUP INC.
251 S. [illegible] AVE., PASADENA, CALIFORNIA 91101-3063
TELEPHONE (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD 10-A 1017

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H10319
WBS CODE:

LABORATORY NAME & ADDRESS: CKY, Inc.
630 maple Ave.
Torrance, CA 90503

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT
10-A00200	6/8/96	1300	DD	1	~~[illegible]~~ 1-L AGER	NONE	WQ	SW8080 PCB		

Nothing Follows

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	SAMPLE TYPE	DEPTH (FT) BEGIN / END	QC CODE
FIELD QC 08 066596EB1			EB1

COMMENTS:

	DATE	TIME		DATE	TIME
COLLECTED & RELEASED BY Dwight Dial	6/12/96	16:00	TURNAROUND TIME		
RECEIVED BY Dwight Dial	6/12/96	16:00	RELINQUISHED BY	/ /	:
RECORD RETURNED BY	/ /	:	SHIPPING NUMBER: 9630755930		

SAMPLING COMMENTS:
LOT # 608082

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92GD0097MISC

JE JAC[illegible] ENGINEERING GROUP INC.
251 [illegible] AVE., PASADENA, CALIFORNIA 91101-3063
TELEPHONE (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TO - A1018

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE	LABORATORY NAME & ADDRESS: CKY, Inc.
PROJECT NUMBER: 27H10319	630 maple Ave
WBS CODE:	Torrance, CA 90503

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	[illegible]	CONDITION ON RECEIPT
TO-A00010	6/12/96	1500	DD	1	1L glass bottle	NONE	WQ	SW8080PCB		
TO-A00211	6/12/96	1500	DD	1	1L ADER	NONE	WQ	SW8080PCB		

Not High Follow

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	SAMPLE TYPE	DEPTH (FT) BEGIN - END	QC CODE
FIELDQL 061296EB1	WQ	----	EB1
FIELD QC 061296	WQ	----	AB

COMMENTS:

SAMPLING COMMENTS: LOT# 6108082

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
[signature]	6/12/96	1600			
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
FED-X	6/12/96	16:00		/ /	:
RECORD RETURNED BY	DATE	TIME			
	/ /	:	SHIPPING NUMBER: 9630795		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92GD0097MISC

127

JACOBS ENGINEERING GROUP INC.
251 S. LAKE AVE. PASADENA, CALIFORNIA 91101-3063
TELEPHONE (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TO-A1019

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H10319
WBS CODE:

LABORATORY NAME & ADDRESS: CKY, Inc.
630 Maple Ave.
Torrance, CA 90503

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT
TU-A00220	6/11/96	1200	PD	1	12 glass bottle	NONE	WG	SW8080 PCB		

Not Hit Follows PD

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
[signature]	6/12/96	16:00			
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
FED-X	6/12/96	16:00		/ /	:
RECORD RETURNED BY	DATE	TIME			
	/ /	:	SHIPPING NUMBER: 9630795926		

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	SAMPLE TYPE	DEPTH (FT) BEGIN END	QC CODE
FIELD QC 060796EB1		----	EB1

SAMPLING COMMENTS:
LOT # 6108082

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92GD0097MISC

JACOBS ENGINEERING GROUP INC.
251 S. LAKE AVE., PASADENA, CALIFORNIA 91101-3063
TELEPHONE: (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TO-A1020

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H10319
WBS CODE:

LABORATORY NAME & ADDRESS: CKY, INC.
630 Maple Ave.
Torrance, CA 90503

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLE MATRIX	NUMBER OF CONTAINERS	CONTAINER TYPE AND SIZE	PRESERVATIVE	FILTERED	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT
TO-A00030	6/10/96	1700	DO	1	1 L amber glass	NONE	WQ	SW8080PCB		

LOCATION		DEPTH (FT) BEGIN END	
FIELDQC 061096EB1		----	EB1

Nothing follows

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
[signature]	6/10/96	16:00			
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
FED-X	6/10/96	16:00		/ /	:
RECORD RETURNED BY	DATE	TIME			
	/ /	:			

SHIPPING NUMBER: 9630795930

SAMPLING COMMENTS: LOT# G108082

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92GD0097MISC

JE JACOBS ENGINEERING GROUP INC.
251 S. LAKE AVE., PASADENA, CALIFORNIA 91101-3063
TELEPHONE (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TO-A1013

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H10319
WBS CODE:

LABORATORY NAME & ADDRESS: SPDL
25 Liberty Ship Way
Sausalito, CA 94965

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	MATRIX CODE	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	TAT CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT
TO-A00160	6/11/96	1324	DD	1	~~4oz~~ 8oz glass bottles	NONE	SR	SW8080PCB; Moisture		
TO-A00161	6/11/96	1340	DD	1	8oz ↓	↓	↓	↓ ↓		

Nothing Follows

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	SUPPLEMENTAL	DEPTH (FT) BEGIN / END	QC CODE
B659NPCB / B659N-WP-SR-01DD		0.0 / .25	FD
B659NPCB / B659N-WP-SR-10DD		0.0 / .25	FD

COMMENTS:

SAMPLING COMMENTS: LOT # 5312022

	DATE	TIME		DATE	TIME
COLLECTED & RELEASED BY: [signature]	6/12/96	1600	TURNAROUND TIME		
RECEIVED BY: FED-X	6/12/96	16:00	RELINQUISHED BY	/ /	:
RECORD RETURNED BY:	/ /	:	SHIPPING NUMBER: 9630795911		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92GD0097MISC

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JE JAC ENGINEERING GROUP INC.
251 S. LAKE AVE. / PASADENA, CALIFORNIA 91101-3063
TELEPHONE (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TO-A1014

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H10319
WBS CODE:

LABORATORY NAME & ADDRESS: SPDL
25 Liberty Ship Way
Sausalito, CA 94965

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLE MATRIX CODE	NUMBER OF CONTAINERS	CONTAINER TYPE AND VOLUME	PRESERVATIVE	LABORATORY BATCH	ANALYSES REQUESTED	MS/MSD	CONDITION ON RECEIPT
TO-A00170	6/11/96	1555	SO	1	8oz glass bottle	NONE	BC	SW8080 PCB; Moisture		
TO-A00171	6/11/96	1115	SO	1	8oz glass bottle	NONE	CC	SW8080 PCB; Moisture		

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
Dwight Beal	10/12/96	16:00			
RECEIVED BY: FED-X	DATE 10/12/96	TIME 16:00	RELINQUISHED BY	DATE / /	TIME :
RECORD RETURNED BY	DATE / /	TIME :			
			SHIPPING NUMBER: 963079594 1		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92GD0097MISC

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	SUFFIX	DEPTH C/T BEGIN	DEPTH C/T END	ACCOUNT
B659NPCB		0.0		
B659N-WP-BC-1400		.25		PO
B659NPCB		0.0		
B659N-FP-CC-1600		.25		PO
25DD WA 7/12/96		----		

SAMPLING COMMENTS:
Lot # 5312022

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JACOBS ENGINEERING GROUP INC.
251 S. LAKE AVE., PASADENA, CALIFORNIA 91101-3063
TELEPHONE (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD TD-A1015

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE
PROJECT NUMBER: 27H10319
WBS CODE:

LABORATORY NAME & ADDRESS: SPDL
25 Liberty Ship Way
Sausalito, CA 94965

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED		CONDITION ON RECEIPT
TD-A00180	6/10/96	1415	DB	1	8oz 8oz glass bottle	NONE	CC	SW8080PCB; Moisture		
TD-A00181	6/11/96	0930	DB	1	8oz ↓	↓	CC	↓ ↓		

Nothing Follows

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION		DEPTH BEGIN / END	
B659NPCB / B659N-FP-CC-26DD	29 DD WS 1-12-96	0.0 / .25	FD
B659NPCB / B659N-FP-CC-26DD		0.0 / .25	FD
44 DD WS 1-12-96			

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
[signature]	6/12/96	16:00			
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
FEDX	6/12/96	16:00		/ /	:
RECORD RETURNED BY	DATE	TIME			
	/ /	:			

SHIPPING NUMBER: 9630795941

SAMPLING COMMENTS:
LOT# 5 S/2022

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92GD0097MISC

ATTACHMENT FIVE

Schaleger, Larry

From: Schaleger, Larry
To: 'jesparza'; 'D. Elskamp'; 'M. Mackenzie'; 'Les Schmittner'; Kushins, Joel; Sextro, Robert; Nuss, Linda; Pomatto, Christina; Busch, Dayton; Zike, Bruce; Christensen, Doug; Duerr, Del
Subject: Preparatory phase meeting, Tooele B659 PCB analysis
Date: Monday, June 03, 1996 4:29PM

1. Attendees (conference call): Kam Pang and Kennette Pimentel, CKY, Torrance, CA (contract laboratory); John Esparza, Sacramento Army Corps of Engineers; and Larry Schaleger, JEG-Sacramento.

2. Project Objectives -- closure criteria of 25 mg/kg (solids) and 10 ug/100 cm sq (filter paper wipes) for PCBs. Compositing scheme requires detection limits of 0.1 mg/kg in the case of solids. CKY affirmed that these DLs could be met, assuming absence of severe matrix effects.

3. Project Organization re: PCB analysis:
CKY: Kennette, lab project manager; Kevin Hoang, lab QC manager; Kam Pang, lab director. JEG-Tooele: Dayton Busch, field tech; Beth Pomatto, field supervisor.
JEG-Sacto: Larry Schaleger, proj chemist; Linda Nuss, sr chemist; Bob Sextro, QA

4. QAPP Review
a. Sample preparation: Lab has detailed compositing protocol. Sample size (weight) should be sufficient for all tests. Concrete chips will be subsampled, reduced to <10 mesh, split into two portions, one to be composited, one to be reserved for discrete analysis if necessary. Ditto for other matrices (wood, plasterboard, brick). Compositing instructions to be included on COCs.
b. Extractions--soxhlet, 10 g samples, final volume 5 mL. Wipes will be diluted to 10 mL in hexane.
c. Required detection limits reviewed. Lowest calibration standard, 50 ug/kg (solid equivalent).
d. Required QC: Understood except that default acceptance limits for MS/MSD recovery from solids will be lowered to 50-150% from 65-135% based on lab experience with soils. No basis for telling what they should be from concrete, other odd matrices so actual recoveries will be monitored for evidence of matrix effects. Default MS/MSD RPD raised from 20% to 50% for similar reasons. Spiking levels set at 0.5 ppm or lower.
5. Reporting Results
At least one data package or 10% of samples will be complete (include all raw data).
6. Administrative: containers have been received in the field (field confirmation).
7. Other: Standard requirement re: SDG to include same-day samples only is waived.
Initial (kickoff) meeting to be held when first samples are received, LS to be included.

ATTACHMENT SIX

LABORATORY PCB COMPOSITING PROTOCOL

Approximately 30 concrete chip samples, 15 wood chip samples and 10 filter paper wipe samples will be collected. Three additional concrete chip samples and one or two wood chip samples will be submitted as field duplicates. One solvent-moistened filter paper sample will be submitted as a field blank. Equipment rinsates (aqueous) will accompany the samples. The concrete chip samples are to be composited as are the wood samples.

The action levels for cleanup are 25 mg/kg (ppm) for solids and 10 ug for the filter paper wipe samples. (If these criteria are corrected to account for a 1-in-200 probability of false positive results, then working action levels of 35 ppm and 14 ug, respectively, may be calculated). The detection limit goals are as follows:

(0.1) x [Action level]/[#samples in the composite] = Detection Limit

For example, for a cement composite consisting of 10 samples, the detection limit goal is

(0.1) x (25)/(10) = 0.25 ppm.

The laboratory will be required to run a detection limit verification standard by analyzing a cement sample spiked with a representative PCB at a level of approximately 0.2-0.5 ppm in order to confirm the required sensitivity. Note that if the composite of ten samples is found to contain 2.5 ppm of PCBs, no individual sample can contain more than 25 ppm. If no PCBs are detected in the composite, no individual sample can contain more than 10 x 0.25 = 2.5 ppm of contaminant.

Following the guidance of EPA-560/5-85-026, August, 1985, "Verification of PCB Spill Cleanup by Sampling and Analysis', the concrete (30 count) and wood (15 count) samples will be combined into three composite cement samples consisting of 10 individual samples each and three composite wood samples consisting of four, five and six samples each.

Laboratory Processing Outline. The following scheme will be followed by the laboratory for the preparation and analysis of cement core and wood chip samples:

1. Receive approximately 50 concrete (CT) and wood (WD) chip samples. Each sample will be pre-designated as to which composite group it belongs, e.g., CT-A, -B and -C and WD-D, -E, and -F. The field duplicates will be identified.
2. Pulverize or comminute each sample to pass a 10-mesh screen. (Discard rocks and pebbles).
3. Divide each pulverized sample into two homogeneous subsamples of approximately equal weights. One part will be composited; the other part will be reserved for individual extraction and analysis, if required. The field duplicate samples will not be composited.
4. Combine equal weights of subsamples into their designated composites. Homogenize each of the composites by physical means.
5. Select one of the three cement and one of the three wood composites for spiking as MS/MSD pairs.
6. Prepare samples for analysis using Soxhlet extraction. The samples to be extracted include six composites, two spiked composites, two duplicate spiked composites, individual field duplicates as indicated on the chain-of-custody and, if necessary, 45-50 additional individual samples. (The individual samples will be extracted if necessary to assure that extraction holding times will have been met, should subsequent analysis be needed).
7. Analyze the six composite extracts and the two MS/MSD pairs for PCBs by method SW8081.
8. Analyze the ten wipe samples and one field blank wipe for PCBs.
9. Report all results to Jacobs and await instructions regarding the need to analyze individual samples. Each field duplicate and the individual sample with which it is paired will be analyzed only if specifically requested by Jacobs.
10. Each prep batch will be accompanied by a laboratory control standard (blank spike, BS).

Supplementary Sampling Instructions -- PCBs

1. Field duplicates/QA Splits.
   Minimum: 10% per matrix

Example: sample #7 goes to laboratory (CKY) with instructions to halve the sample, composite one half and reserve the other half. Sample #7D, the collocated field duplicate, gets chipped and split (halved) in the field; half goes as a separate sample to CKY and half gets sent to SPDL in Sausalito.

2. Equipment rinsates: 1/day

3. Ambient (DI water) blank: 1/lot #

4. Matrix spike/matrix spike duplicates:
   Minimum of one pair/matrix/20 samples

Samples to be composited: lab will be instructed to run MS/MSD on the designated composite

5. ~~Filter paper~~ blank, one only, moistened with hexane, bottled and sent to CKY as a ~~discrete sample~~. cancel

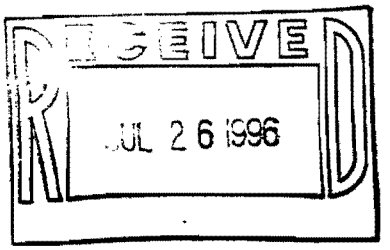
Attachment 3

Raw Data and Laboratory Reports

C K Y incorporated
Analytical Laboratories

ORIGINAL

Date: 07-23-1996
CKY Batch No.: 96F041



Attn: Nora White

Jacobs Engineering Group
2525 Natomas Park Dr., Ste. 370
Sacramento CA 95833

Subject: Additional Laboratory Report
Project: Tooele / 27H10319

Enclosed is the additional laboratory report for samples received on 06/13/96. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
TO-A00020	F041-11	WC	EPA 8080 (PCBs)
TO-A00049	F041-28	CC	EPA 8080 (PCBs)
TO-A00073	F041-33	CC	EPA 8080 (PCBs)
TO-A00108	F041-49	CC	EPA 8080 (PCBs)

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

K. C. Pang

Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

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630 Maple Ave., Torrance, Calif. 90503 • Telephone 310-618-8889 • Fax: 310-618-0818

Lab Sample ID	Composite	Moisture
96F041- 1	96F041-CA	MC
96F041- 2	96F041-CA	MC
96F041- 3	96F041-CA	MC
96F041- 4	96F041-CA	MC
96F041- 5	96F041-CA	MC
96F041- 6		MC
96F041- 7	96F041-CB	
96F041- 8	96F041-CB	
96F041- 9	96F041-CB	
96F041- 10	96F041-CB	
96F041- 11	96F041-CC	
96F041- 12	96F041-CC	
96F041- 13	96F041-CC	
96F041- 14	96F041-CC	
96F041- 15		MC
96F041- 16	96F041-CD	MC
96F041- 17	96F041-CD	MC
96F041- 18	96F041-CD	
96F041- 19	96F041-CE	
96F041- 20	96F041-CE	
96F041- 21	96F041-CE	
96F041- 22	96F041-CE	
96F041- 23	96F041-CE	
96F041- 24	96F041-CE	
96F041- 25	96F041-CE	
96F041- 26	96F041-CE	
96F041- 27	96F041-CE	
96F041- 28	96F041-CE	
96F041- 29		MC
96F041- 30	96F041-CF	
96F041- 31	96F041-CF	
96F041- 32	96F041-CF	
96F041- 33	96F041-CF	
96F041- 34	96F041-CF	
96F041- 35	96F041-CF	
96F041- 36	96F041-CF	
96F041- 37	96F041-CF	
96F041- 38	96F041-CF	
96F041- 39	96F041-CF	
96F041- 40		MC

Lab Sample ID	Composite	Moisture
96F041- 41	96F041-CG	
96F041- 42	96F041-CG	
96F041- 43	96F041-CG	
96F041- 44	96F041-CG	
96F041- 45	96F041-CG	
96F041- 46	96F041-CG	
96F041- 47	96F041-CG	
96F041- 48	96F041-CG	
96F041- 49	96F041-CG	
96F041- 50	96F041-CG	
96F041- 51		MC
96F041- 52		
96F041- 53		
96F041- 54		
96F041- 55		
96F041- 56		
96F041- CA		MC
96F041- CAM		
96F041- CAS		
96F041- CB		MC
96F041- CC		MC
96F041- CCM		
96F041- CCS		
96F041- CD		MC
96F041- CDM		
96F041- CDS		
96F041- CE		MC
96F041- CEM		
96F041- CES		
96F041- CF		MC
96F041- CG		MC
96F041- CGM		
96F041- CGS		

SAMPLE LOGIN

Refer sample login from the table.
Each sample shall be logged in as well as the composite samples. Client sample ID shall be logged as "COMP-GROUP-X"

SAMPLE HANDLING AND PREPARATION

1 Individually crush all samples using the drop hammer. Make sure that the steel mold is free from contamination before using it and every after working on each sample.
2 Split the samples that requires grouping (refer to table).
1 part is returned to the original container
1 part goes to the composite jar
3 Analyze moisture only on the samples indicated in the table
4 Extract samples by Method 3540 (Soxhlet Extraction)
5 Group extraction as follows:
96F041- CA, CB, CD, CE, CF, CG, 6, 15, 29, 40, 51
96F041- ~~1 to 5, 7 to 14~~ 10→14, 19→28
96F041- ~~16 to 28~~ 30→39 41→50
~~96F041- 30 to 39, 41 to 50~~
set 2nd batch
6 Prepare Blank and LCS for every batch.
7 Perform MS/MSD on the following samples
96F041-CA 96F041-CC 96F041-CD 96F041-CE 96F041-CG

001

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EPA METHOD 3520/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	08/12/96
PROJECT:	Toole Ammunition/ 27-H103-19	DATE RECEIVED:	08/15/96
BATCH NO.:	96H058	DATE EXTRACTED:	08/17/96
SAMPLE ID:	PCB-1	DATE ANALYZED:	08/21/96
CONTROL NO.:	H058-01	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Aroclor-1016	ND	3
Aroclor-1221	ND	3
Aroclor-1232	ND	3
Aroclor-1242	ND	3
Aroclor-1248	ND	3
Aroclor-1254	ND	3
Aroclor-1260	ND	3

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	42	50-150
Decachlorobiphenyl	18*	50-150

RL: Reporting Limit
* : Out of QC limits

EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/11/96
PROJECT:	Toole / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/22/96
SAMPLE ID:	TO-A00020	DATE ANALYZED:	06/26/96
CONTROL NO.:	F041-11	MATRIX:	WC
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50
Aroclor-1221	ND	50
Aroclor-1232	ND	50
Aroclor-1242	ND	50
Aroclor-1248	ND	50
Aroclor-1254	ND	50
Aroclor-1260	234	50

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	91	50-150
Decachlorobiphenyl	87	50-150

RL: Reporting Limit

003

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/08/96
PROJECT:	Toole / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/22/96
SAMPLE ID:	TO-A00049	DATE ANALYZED:	06/26/96
CONTROL NO.:	F041-28	MATRIX:	CC
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50
Aroclor-1221	ND	50
Aroclor-1232	ND	50
Aroclor-1242	ND	50
Aroclor-1248	ND	50
Aroclor-1254	ND	50
Aroclor-1260	ND	50

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	83	50-150
Decachlorobiphenyl	30*	50-150

RL: Reporting Limit
* : Out of QC limit

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/10/96
PROJECT:	Toole / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/24/96
SAMPLE ID:	TO-A00073	DATE ANALYZED:	06/27/96
CONTROL NO.:	F041-33	MATRIX:	CC
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50
Aroclor-1221	ND	50
Aroclor-1232	ND	50
Aroclor-1242	ND	50
Aroclor-1248	ND	50
Aroclor-1254	ND	50
Aroclor-1260	2590	50

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	96	50-150
Decachlorobiphenyl	52	50-150

RL: Reporting Limit

005

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/10/96
PROJECT:	Toole / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/24/96
SAMPLE ID:	TO-A00073	DATE ANALYZED:	07/01/96
CONTROL NO.:	F041-33T	MATRIX:	CC
% MOISTURE:	NA	DILUTION FACTOR:	5

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	250
Aroclor-1221	ND	250
Aroclor-1232	ND	250
Aroclor-1242	ND	250
Aroclor-1248	ND	250
Aroclor-1254	ND	250
Aroclor-1260	ND	250

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	140	50-150
Decachlorobiphenyl	78	50-150

RL: Reporting Limit

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/11/96
PROJECT:	Toole / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/24/96
SAMPLE ID:	TO-A00108	DATE ANALYZED:	06/27/96
CONTROL NO.:	F041-49	MATRIX:	CC
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50
Aroclor-1221	ND	50
Aroclor-1232	ND	50
Aroclor-1242	ND	50
Aroclor-1248	ND	50
Aroclor-1254	ND	50
Aroclor-1260	ND	50

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	86	50-150
Decachlorobiphenyl	23*	50-150

RL: Reporting Limit
* : Out of QC limit

CKY INC., ANALYTICAL LABORATORIES, 630 Maple Ave., Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	NA
PROJECT:	Toole / 27H10319	DATE RECEIVED:	NA
BATCH NO.:	96F041	DATE EXTRACTED:	06/22/96
SAMPLE ID:	MBLK1S	DATE ANALYZED:	06/26/96
CONTROL NO.:	CPF019SB	MATRIX:	WC
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50
Aroclor-1221	ND	50
Aroclor-1232	ND	50
Aroclor-1242	ND	50
Aroclor-1248	ND	50
Aroclor-1254	ND	50
Aroclor-1260	ND	50

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	117	50-150
Decachlorobiphenyl	98	50-150

RL: Reporting Limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	NA
PROJECT:	Toole / 27H10319	DATE RECEIVED:	NA
BATCH NO.:	96F041	DATE EXTRACTED:	06/22/96
SAMPLE ID:	MBLK2S	DATE ANALYZED:	06/26/96
CONTROL NO.:	CPF020SB	MATRIX:	WC
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50
Aroclor-1221	ND	50
Aroclor-1232	ND	50
Aroclor-1242	ND	50
Aroclor-1248	ND	50
Aroclor-1254	ND	50
Aroclor-1260	ND	50

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	97	50-150
Decachlorobiphenyl	99	50-150

RL: Reporting Limit

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CKY QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: Jacobs Engineering Group
PROJECT: Toole / 27H10319
METHOD: EPA 3540/8080
MATRIX: WC
% MOISTURE: NA

BATCH NO.: 96F041
SAMPLE ID: LCS1S/LCS1SD
CONTROL NO.: CPF019SL/C

DATE RECEIVED: NA
DATE EXTRACTED: 06/22/96
DATE ANALYZED: 06/26/96

ACCESSION: 96F041

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Aroclor 1260	ND	250.00	265.00	106	250.00	272.00	109	3	50-150	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT %
Tetrachloro-m-xylene	40.00	41.80	104	40.00	46.30	116	50-150
Decachlorobiphenyl	40.00	40.80	102	40.00	41.10	103	50-150

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CKY QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: Jacobs Engineering Group
PROJECT: Toole / 27H10319
METHOD: EPA 3540/8080
MATRIX: WC
% MOISTURE: NA

BATCH NO.: 96F041
SAMPLE ID: LCS2S/LCS2SD
CONTROL NO.: CPF020SL/C

DATE RECEIVED: NA
DATE EXTRACTED: 06/22/96
DATE ANALYZED: 06/26/96

ACCESSION: 96F041

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Aroclor 1260	ND	250.00	248.00	99	250.00	262.00	105	5	50-150	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT %
Tetrachloro-m-xylene	40.00	38.30	96	40.00	36.70	92	50-150
Decachlorobiphenyl	40.00	40.00	100	40.00	41.00	102	50-150

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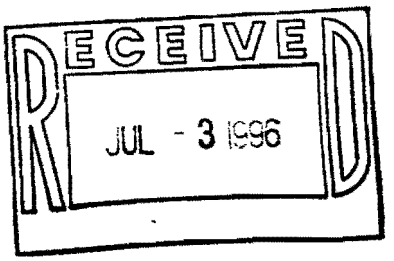
(45)

C K Y incorporated
Analytical Laboratories

Date: 06-29-1996
CKY Batch No.: 96F041

ORIGINAL



Attn: Nora White

Jacobs Engineering Group
2525 Natomas Park Dr., Ste. 370
Sacramento CA 95833

Subject: Laboratory Report
Project: Tooele / 27H10319

Enclosed is the Laboratory report for samples received on 06/13/96. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported include :

Sample ID	Control No.	Matrix	Analysis
TO-A00001	F041-01	WC	EPA 8080 (PCBs)
TO-A00002	F041-02	WC	EPA 8080 (PCBs)
TO-A00003	F041-03	WC	EPA 8080 (PCBs)
TO-A00004	F041-04	WC	EPA 8080 (PCBs)
TO-A00005	F041-05	WC	EPA 8080 (PCBs)
TO-A00006	F041-06	WC	EPA 8080 (PCBs)
TO-A00010	F041-07	WC	EPA 8080 (PCBs)
TO-A00011	F041-08	WC	EPA 8080 (PCBs)
TO-A00012	F041-09	WC	EPA 8080 (PCBs)
TO-A00013	F041-10	WC	EPA 8080 (PCBs)
TO-A00020	F041-11	WC	EPA 8080 (PCBs)
TO-A00021	F041-12	WC	EPA 8080 (PCBs)
TO-A00022	F041-13	WC	EPA 8080 (PCBs)
TO-A00023	F041-14	WC	EPA 8080 (PCBs)
TO-A00024	F041-15	WC	EPA 8080 (PCBs)
TO-A00030	F041-16	BC	EPA 8080 (PCBs)
TO-A00031	F041-17	BC	EPA 8080 (PCBs)
TO-A00032	F041-18	BC	EPA 8080 (PCBs)
TO-A00040	F041-19	CC	EPA 8080 (PCBs)
TO-A00041	F041-20	CC	EPA 8080 (PCBs)
TO-A00042	F041-21	CC	EPA 8080 (PCBs)
TO-A00043	F041-22	CC	EPA 8080 (PCBs)
TO-A00044	F041-23	CC	EPA 8080 (PCBs)
TO-A00045	F041-24	CC	EPA 8080 (PCBs)
TO-A00046	F041-25	CC	EPA 8080 (PCBs)
TO-A00047	F041-26	CC	EPA 8080 (PCBs)
TO-A00048	F041-27	CC	EPA 8080 (PCBs)
TO-A00049	F041-28	CC	EPA 8080 (PCBs)
TO-A00050	F041-29	CC	EPA 8080 (PCBs)
TO-A00070	F041-30	CC	EPA 8080 (PCBs)
TO-A00071	F041-31	CC	EPA 8080 (PCBs)
TO-A00072	F041-32	CC	EPA 8080 (PCBs)

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Sample ID	Control No.	Matrix	Analysis
TO-A00073	F041-33	CC	EPA 8080 (PCBs)
TO-A00074	F041-34	CC	EPA 8080 (PCBs)
TO-A00075	F041-35	CC	EPA 8080 (PCBs)
TO-A00076	F041-36	CC	EPA 8080 (PCBs)
TO-A00077	F041-37	CC	EPA 8080 (PCBs)
TO-A00078	F041-38	CC	EPA 8080 (PCBs)
TO-A00079	F041-39	CC	EPA 8080 (PCBs)
TO-A00080	F041-40	CC	EPA 8080 (PCBs)
TO-A00100	F041-41	CC	EPA 8080 (PCBs)
TO-A00101	F041-42	CC	EPA 8080 (PCBs)
TO-A00102	F041-43	CC	EPA 8080 (PCBs)
TO-A00103	F041-44	CC	EPA 8080 (PCBs)
TO-A00104	F041-45	CC	EPA 8080 (PCBs)
TO-A00105	F041-46	CC	EPA 8080 (PCBs)
TO-A00106	F041-47	CC	EPA 8080 (PCBs)
TO-A00107	F041-48	CC	EPA 8080 (PCBs)
TO-A00108	F041-49	CC	EPA 8080 (PCBs)
TO-A00109	F041-50	CC	EPA 8080 (PCBs)
TO-A00110	F041-51	CC	EPA 8080 (PCBs)
TO-A00200	F041-52	Water	EPA 8080 (PCBs)
TO-A00210	F041-53	Water	EPA 8080 (PCBs)
TO-A00211	F041-54	Water	EPA 8080 (PCBs)
TO-A00220	F041-55	Water	EPA 8080 (PCBs)
TO-A00230	F041-56	Water	EPA 8080 (PCBs)
COMP-GROUP-A	F041-CA	WC	EPA 8080 (PCBs)
COMP-GROUP-AMS	F041-CAM	WC	EPA 8080 (PCBs)
COMP-GROUP-AMS	F041-CAS	WC	EPA 8080 (PCBs)
COMP-GROUP-B	F041-CB	WC	EPA 8080 (PCBs)
COMP-GROUP-C	F041-CC	WC	EPA 8080 (PCBs)
COMP-GROUP-CMS	F041-CCM	WC	EPA 8080 (PCBs)
COMP-GROUP-CMS	F041-CCS	WC	EPA 8080 (PCBs)
COMP-GROUP-D	F041-CD	BC	EPA 8080 (PCBs)
COMP-GROUP-DMS	F041-CDM	BC	EPA 8080 (PCBs)
COMP-GROUP-DMS	F041-CDS	BC	EPA 8080 (PCBs)
COMP-GROUP-E	F041-CE	CC	EPA 8080 (PCBs)
COMP-GROUP-EMS	F041-CEM	CC	EPA 8080 (PCBs)
COMP-GROUP-EMS	F041-CES	CC	EPA 8080 (PCBs)
COMP-GROUP-F	F041-CF	CC	EPA 8080 (PCBs)
COMP-GROUP-G	F041-CG	CC	EPA 8080 (PCBs)
COMP-GROUP-GMS	F041-CGM	CC	EPA 8080 (PCBs)
COMP-GROUP-GMS	F041-CGS	CC	EPA 8080 (PCBs)

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

P.S. - All analyses requested for the above referenced project have been completed. Therefore, unless instructed, the remaining portions of the samples will be disposed after fifteen (15) days from the date of this report.

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CASE NARRATIVE

CLIENT: JACOBS ENGINEERING

PROJECT: TOOELE/27H10319

SDG: 96F041

PCBs

Fifty-one (51) concrete and wood chip samples and five (5) water samples were received on 06/13/96 to be analyzed for PCBs by EPA 8080 in accordance with SW846 (3rd Rev. 1994). The solid samples were composited into 8 samples as shown in the attached page.

I. Holding Time

All samples were extracted and analyzed within the holding time except the re-extraction of composite samples F041-CG, F041-GC matrix spike and matrix spike duplicate to verify the matrix effect.

II. Blank

All method blanks were free of contamination.

III. Matrix Spike/Matrix Spike Duplicate

Composite samples F041-CA, F041-CC from wood chips were spiked with Arochlor 1260. Recoveries in F041-CA were within QC limits of 55-145% but RPD was 25% which was out of project specific limit of 20%. The recoveries of F041-CC were 52% and 63% respectively.

Matrix spike recoveries from a composite sample of concrete (F041-CG) had low recoveries in the original extracts. Upon reextraction and reanalysis, recovery of one matrix spike was still out of QC limits.

IV. Lab Control Sample

All results were within the control limits.

V. Surrogate Recovery

Recoveries of TCX in all samples were within QC limits of 50-150% except in the reanalysis of F041-CE, which may be attributed to column interference. Recoveries of DCB in F041-55, F041-29, F041-40, F041-51, F041-CC, F041-CE, F041-CF, F041-CG, F041-CA MS/MSD, F041-CC MS/MSD, F041-CD MS/MSD, F041-CE MS/MSD, F041-CG MS/MSD were outside QC limits. Recoveries of DCB in reanalyses of F041-29, F041-40, F041-51, F041-CC, F041-CF, F041-CG, F041-CGM, F041-CGS and F041-CCS were still out of QC limit.

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TEAD, BLG 569 PROJECT

Lab Sample ID	Composite	Moisture
96F041- 1	96F041-CA	MC
96F041- 2	96F041-CA	MC
96F041- 3	96F041-CA	MC
96F041- 4	96F041-CA	MC
96F041- 5	96F041-CA	MC
96F041- 6		MC
96F041- 7	96F041-CB	
96F041- 8	96F041-CB	
96F041- 9	96F041-CB	
96F041- 10	96F041-CB	
96F041- 11	96F041-CC	
96F041- 12	96F041-CC	
96F041- 13	96F041-CC	
96F041- 14	96F041-CC	
96F041- 15		MC
96F041- 16	96F041-CD	MC
96F041- 17	96F041-CD	MC
96F041- 18	96F041-CD	
96F041- 19	96F041-CE	
96F041- 20	96F041-CE	
96F041- 21	96F041-CE	
96F041- 22	96F041-CE	
96F041- 23	96F041-CE	
96F041- 24	96F041-CE	
96F041- 25	96F041-CE	
96F041- 26	96F041-CE	
96F041- 27	96F041-CE	
96F041- 28	96F041-CE	
96F041- 29		MC
96F041- 30	96F041-CF	
96F041- 31	96F041-CF	
96F041- 32	96F041-CF	
96F041- 33	96F041-CF	
96F041- 34	96F041-CF	
96F041- 35	96F041-CF	
96F041- 36	96F041-CF	
96F041- 37	96F041-CF	
96F041- 38	96F041-CF	
96F041- 39	96F041-CF	
96F041- 40		MC

SAMPLE LOGIN

Refer sample login from the table.
Each sample shall be logged in as well as the composite samples. Client sample ID shall be logged as "COMP-GROUP-X"

Lab Sample ID	Composite	Moisture
96F041- 41	96F041-CG	
96F041- 42	96F041-CG	
96F041- 43	96F041-CG	
96F041- 44	96F041-CG	
96F041- 45	96F041-CG	
96F041- 46	96F041-CG	
96F041- 47	96F041-CG	
96F041- 48	96F041-CG	
96F041- 49	96F041-CG	
96F041- 50	96F041-CG	
96F041- 51		MC
96F041- 52		
96F041- 53		
96F041- 54		
96F041- 55		
96F041- 56		
96F041- CA		MC
96F041- CAM		
96F041- CAS		
96F041- CB		MC
96F041- CC		MC
96F041- CCM		
96F041- CCS		
96F041- CD		MC
96F041- CDM		
96F041- CDS		
96F041- CE		MC
96F041- CEM		
96F041- CES		
96F041- CF		MC
96F041- CG		MC
96F041- CGM		
96F041- CGS		

SAMPLE HANDLING AND PREPARATION

1 Individually crush all samples using the drop hammer.
Make sure that the steel mold is free from contamination before using it and every after working on each sample.
2 Split the samples that requires grouping (refer to table).
1 part is returned to the original container
1 part goes to the composite jar
3 Analyze moisture only on the samples indicated in the table
4 Extract samples by Method 3540 (Soxhlet Extraction)
5 Group extraction as follows:
96F041- CA, CB, CD, CE, CF, CG, 6, 15, 29, 40, 51
96F041- 1 to 5, 7 to 14
96F041- 16 to 28
96F041- 30 to 39, 41 to 50
6 Prepare Blank and LCS for every batch.
7 Perform MS/MSD on the following samples
96F041-CA 96F041-CC 96F041-CD 96F041-CE 96F041-CG

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EPA METHOD 3520/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/08/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	TO-A00200	DATE ANALYZED:	06/19/96
CONTROL NO.:	F041-52	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Aroclor-1016	ND	3
Aroclor-1221	ND	3
Aroclor-1232	ND	3
Aroclor-1242	ND	3
Aroclor-1248	ND	3
Aroclor-1254	ND	3
Aroclor-1260	ND	3

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	68	50-150
Decachlorobiphenyl	60	50-150

RL: Reporting Limit

05

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EPA METHOD 3520/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/12/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	TO-A00210	DATE ANALYZED:	06/19/96
CONTROL NO.:	F041-53	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Aroclor-1016	ND	3
Aroclor-1221	ND	3
Aroclor-1232	ND	3
Aroclor-1242	ND	3
Aroclor-1248	ND	3
Aroclor-1254	ND	3
Aroclor-1260	ND	3

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	80	50-150
Decachlorobiphenyl	73	50-150

RL: Reporting Limit

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EPA METHOD 3520/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/12/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	TO-A00211	DATE ANALYZED:	06/20/96
CONTROL NO.:	F041-54	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Aroclor-1016	ND	3
Aroclor-1221	ND	3
Aroclor-1232	ND	3
Aroclor-1242	ND	3
Aroclor-1248	ND	3
Aroclor-1254	ND	3
Aroclor-1260	ND	3

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	79	50-150
Decachlorobiphenyl	66	50-150

RL: Reporting Limit

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EPA METHOD 3520/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/11/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	TO-A00220	DATE ANALYZED:	06/20/96
CONTROL NO.:	F041-55	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Aroclor-1016	ND	3
Aroclor-1221	ND	3
Aroclor-1232	ND	3
Aroclor-1242	ND	3
Aroclor-1248	ND	3
Aroclor-1254	ND	3
Aroclor-1260	ND	3

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	81	50-150
Decachlorobiphenyl	41*	50-150

RL: Reporting Limit
* : Out of QC limit

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EPA METHOD 3520/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/10/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	TO-A00230	DATE ANALYZED:	06/20/96
CONTROL NO.:	F041-56	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Aroclor-1016	ND	3
Aroclor-1221	ND	3
Aroclor-1232	ND	3
Aroclor-1242	ND	3
Aroclor-1248	ND	3
Aroclor-1254	ND	3
Aroclor-1260	ND	3

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	81	50-150
Decachlorobiphenyl	65	50-150

RL: Reporting Limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/11/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	TO-A00006	DATE ANALYZED:	06/25/96
CONTROL NO.:	F041-06	MATRIX:	WC
% MOISTURE:	8.3	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	54.5
Aroclor-1221	ND	54.5
Aroclor-1232	ND	54.5
Aroclor-1242	ND	54.5
Aroclor-1248	ND	54.5
Aroclor-1254	ND	54.5
Aroclor-1260	ND	54.5

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	85	50-150
Decachlorobiphenyl	83	50-150

RL: Reporting Limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/11/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	TO-A00024	DATE ANALYZED:	06/26/96
CONTROL NO.:	F041-15	MATRIX:	WC
% MOISTURE:	6.5	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	53.5
Aroclor-1221	ND	53.5
Aroclor-1232	ND	53.5
Aroclor-1242	ND	53.5
Aroclor-1248	ND	53.5
Aroclor-1254	ND	53.5
Aroclor-1260	120	53.5

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	82	50-150
Decachlorobiphenyl	107	50-150

RL: Reporting Limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/08/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	TO-A00050	DATE ANALYZED:	06/20/96
CONTROL NO.:	F041-29	MATRIX:	CC
% MOISTURE:	1.9	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	51
Aroclor-1221	ND	51
Aroclor-1232	ND	51
Aroclor-1242	ND	51
Aroclor-1248	ND	51
Aroclor-1254	ND	51
Aroclor-1260	ND	51

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	72	50-150
Decachlorobiphenyl	18*	50-150

RL: Reporting Limit
* : Out of QC limit

42

161

EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/08/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	TO-A00050	DATE ANALYZED:	06/26/96
CONTROL NO.:	F041-29R	MATRIX:	CC
% MOISTURE:	1.9	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	51
Aroclor-1221	ND	51
Aroclor-1232	ND	51
Aroclor-1242	ND	51
Aroclor-1248	ND	51
Aroclor-1254	ND	51
Aroclor-1260	ND	51

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	76	50-150
Decachlorobiphenyl	28*	50-150

RL: Reporting Limit
* : Out of QC limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/10/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	TO-A00080	DATE ANALYZED:	06/20/96
CONTROL NO.:	F041-40	MATRIX:	CC
% MOISTURE:	1.7	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50.9
Aroclor-1221	ND	50.9
Aroclor-1232	ND	50.9
Aroclor-1242	ND	50.9
Aroclor-1248	ND	50.9
Aroclor-1254	ND	50.9
Aroclor-1260	290	50.9

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	78	50-150
Decachlorobiphenyl	29*	50-150

RL: Reporting Limit
* : Out of QC limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/10/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	TO-A00080	DATE ANALYZED:	06/26/96
CONTROL NO.:	F041-40R	MATRIX:	CC
% MOISTURE:	1.7	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50.9
Aroclor-1221	ND	50.9
Aroclor-1232	ND	50.9
Aroclor-1242	ND	50.9
Aroclor-1248	ND	50.9
Aroclor-1254	ND	50.9
Aroclor-1260	300	50.9

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	87	50-150
Decachlorobiphenyl	43*	50-150

RL: Reporting Limit
* : Out of QC limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/11/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	TO-A00110	DATE ANALYZED:	06/20/96
CONTROL NO.:	F041-51	MATRIX:	CC
% MOISTURE:	1.5	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50.8
Aroclor-1221	ND	50.8
Aroclor-1232	ND	50.8
Aroclor-1242	ND	50.8
Aroclor-1248	ND	50.8
Aroclor-1254	ND	50.8
Aroclor-1260	64	50.8

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	70	50-150
Decachlorobiphenyl	19*	50-150

RL: Reporting Limit
* : Out of QC limit

65

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/12/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	COMP-GROUP-A	DATE ANALYZED:	06/25/96
CONTROL NO.:	F041-CA	MATRIX:	WC
% MOISTURE:	7.3	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	53.9
Aroclor-1221	ND	53.9
Aroclor-1232	ND	53.9
Aroclor-1242	ND	53.9
Aroclor-1248	ND	53.9
Aroclor-1254	ND	53.9
Aroclor-1260	ND	53.9

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	85	50-150
Decachlorobiphenyl	50	50-150

RL: Reporting Limit

77166

EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/12/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	COMP-GROUP-B	DATE ANALYZED:	06/25/96
CONTROL NO.:	F041-CB	MATRIX:	WC
% MOISTURE:	6.3	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	53.4
Aroclor-1221	ND	53.4
Aroclor-1232	ND	53.4
Aroclor-1242	ND	53.4
Aroclor-1248	ND	53.4
Aroclor-1254	ND	53.4
Aroclor-1260	ND	53.4

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	77	50-150
Decachlorobiphenyl	79	50-150

RL: Reporting Limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/12/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	COMP-GROUP-C	DATE ANALYZED:	06/20/96
CONTROL NO.:	F041-CC	MATRIX:	WC
% MOISTURE:	6.9	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	170	53.7
Aroclor-1221	ND	53.7
Aroclor-1232	ND	53.7
Aroclor-1242	ND	53.7
Aroclor-1248	ND	53.7
Aroclor-1254	ND	53.7
Aroclor-1260	160	53.7

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	73	50-150
Decachlorobiphenyl	24*	50-150

RL: Reporting Limit
* : Out of QC limits

EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/12/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	COMP-GROUP-D	DATE ANALYZED:	06/25/96
CONTROL NO.:	F041-CD	MATRIX:	BC
% MOISTURE:	0.1	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50
Aroclor-1221	ND	50
Aroclor-1232	ND	50
Aroclor-1242	ND	50
Aroclor-1248	ND	50
Aroclor-1254	ND	50
Aroclor-1260	ND	50

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	84	50-150
Decachlorobiphenyl	81	50-150

RL: Reporting Limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/08/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	COMP-GROUP-E	DATE ANALYZED:	06/20/96
CONTROL NO.:	F041-CE	MATRIX:	CC
% MOISTURE:	2.5	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	51.3
Aroclor-1221	ND	51.3
Aroclor-1232	ND	51.3
Aroclor-1242	ND	51.3
Aroclor-1248	ND	51.3
Aroclor-1254	360	51.3
Aroclor-1260	ND	51.3

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	56	50-150
Decachlorobiphenyl	31*	50-150

RL: Reporting Limit
* : Out of QC limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/11/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	COMP-GROUP-F	DATE ANALYZED:	06/20/96
CONTROL NO.:	F041-CF	MATRIX:	CC
% MOISTURE:	1.5	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50.8
Aroclor-1221	ND	50.8
Aroclor-1232	ND	50.8
Aroclor-1242	ND	50.8
Aroclor-1248	ND	50.8
Aroclor-1254	ND	50.8
Aroclor-1260	250	50.8

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	61	50-150
Decachlorobiphenyl	23*	50-150

RL: Reporting Limit
* : Out of QC limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/11/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	COMP-GROUP-F	DATE ANALYZED:	06/25/96
CONTROL NO.:	F041-CFR	MATRIX:	CC
% MOISTURE:	1.5	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50.8
Aroclor-1221	ND	50.8
Aroclor-1232	ND	50.8
Aroclor-1242	ND	50.8
Aroclor-1248	ND	50.8
Aroclor-1254	ND	50.8
Aroclor-1260	230	50.8

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	63	50-150
Decachlorobiphenyl	42*	50-150

RL: Reporting Limit
* : Out of QC limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/11/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	COMP-GROUP-G	DATE ANALYZED:	06/20/96
CONTROL NO.:	F041-CG	MATRIX:	CC
% MOISTURE:	1.4	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50.7
Aroclor-1221	ND	50.7
Aroclor-1232	ND	50.7
Aroclor-1242	ND	50.7
Aroclor-1248	ND	50.7
Aroclor-1254	ND	50.7
Aroclor-1260	200	50.7

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	61	50-150
Decachlorobiphenyl	24*	50-150

RL: Reporting Limit
* : Out of QC limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	06/11/96
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	06/13/96
BATCH NO.:	96F041	DATE EXTRACTED:	06/25/96
SAMPLE ID:	COMP-GROUP-G	DATE ANALYZED:	06/27/96
CONTROL NO.:	F041-CGR	MATRIX:	CC
% MOISTURE:	1.4	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50.7
Aroclor-1221	ND	50.7
Aroclor-1232	ND	50.7
Aroclor-1242	ND	50.7
Aroclor-1248	ND	50.7
Aroclor-1254	ND	50.7
Aroclor-1260	220	50.7

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	67	50-150
Decachlorobiphenyl	43*	50-150

RL: Reporting Limit
* : Out of QC limit

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EPA METHOD 3520/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	NA
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	NA
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	MBLK1W	DATE ANALYZED:	06/19/96
CONTROL NO.:	CPF016WB	MATRIX:	WATER
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/L)	RL (ug/L)
Aroclor-1016	ND	3
Aroclor-1221	ND	3
Aroclor-1232	ND	3
Aroclor-1242	ND	3
Aroclor-1248	ND	3
Aroclor-1254	ND	3
Aroclor-1260	ND	3

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	79	50-150
Decachlorobiphenyl	70	50-150

RL: Reporting Limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	NA
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	NA
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	MBLK1S	DATE ANALYZED:	06/20/96
CONTROL NO.:	CPF015SB	MATRIX:	WC/CC
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50
Aroclor-1221	ND	50
Aroclor-1232	ND	50
Aroclor-1242	ND	50
Aroclor-1248	ND	50
Aroclor-1254	ND	50
Aroclor-1260	ND	50

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	100	50-150
Decachlorobiphenyl	84	50-150

RL: Reporting Limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	NA
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	NA
BATCH NO.:	96F041	DATE EXTRACTED:	06/14/96
SAMPLE ID:	MBLK1SR	DATE ANALYZED:	06/25/96
CONTROL NO.:	CPF015SBR	MATRIX:	WC/CC
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50
Aroclor-1221	ND	50
Aroclor-1232	ND	50
Aroclor-1242	ND	50
Aroclor-1248	ND	50
Aroclor-1254	ND	50
Aroclor-1260	ND	50

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	113	50-150
Decachlorobiphenyl	109	50-150

RL: Reporting Limit

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EPA METHOD 3540/8080
PCB's

CLIENT:	Jacobs Engineering Group	DATE COLLECTED:	NA
PROJECT:	Tooele / 27H10319	DATE RECEIVED:	NA
BATCH NO.:	96F041	DATE EXTRACTED:	06/25/96
SAMPLE ID:	MBLK2S	DATE ANALYZED:	06/27/96
CONTROL NO.:	CPF021SB	MATRIX:	CC
% MOISTURE:	NA	DILUTION FACTOR:	1

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)
Aroclor-1016	ND	50
Aroclor-1221	ND	50
Aroclor-1232	ND	50
Aroclor-1242	ND	50
Aroclor-1248	ND	50
Aroclor-1254	ND	50
Aroclor-1260	ND	50

SURROGATE PARAMETER	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	99	50-150
Decachlorobiphenyl	96	50-150

RL: Reporting Limit

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CKY QUALITY CONTROL DATA
LCS/LCD ANALYSIS

'NT: Jacobs Engineering Group
JECT: Tooele / 27H10319
METHOD: EPA 3520/8080
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 96F041
SAMPLE ID: LCS1W/LCS1WD
CONTROL NO.: CPF016WL/C

DATE RECEIVED: NA
DATE EXTRACTED: 06/14/96
DATE ANALYZED: 06/19/96

ACCESSION: 96F041

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Aroclor 1260	ND	5.00	5.30	106	5.00	5.30	106	0	50-150	50

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT %
Tetrachloro-m-xylene	20.00	16.00	80	20.00	15.80	79	50-150
Decachlorobiphenyl	20.00	15.60	78	20.00	15.20	76	50-150

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CKY QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: Jacobs Engineering Group
PROJECT: Tooele / 27H10319
METHOD: EPA 3540/8080
MATRIX: WC/CC
% MOISTURE: NA

BATCH NO.: 96F041
SAMPLE ID: LCS1S
CONTROL NO.: CPF015SL

DATE RECEIVED: NA
DATE EXTRACTED: 06/14/96
DATE ANALYZED: 06/20/96

ACCESSION: 96F041

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	LCS RSLT (ug/kg)	LCS % REC	QC LIMIT (%)
Aroclor 1260	ND	250.00	258.00	103	50-150

SURROGATE PARAMETER	SPIKE AMOUNT (ug/kg)	LCS RESULT (ug/kg)	LCS % REC	QC LIMIT %
Tetrachloro-m-xylene	40.00	37.40	94	50-150
Decachlorobiphenyl	40.00	35.00	88	50-150

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CKY QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: Jacobs Engineering Group
PROJECT: Tooele / 27H10319
METHOD: EPA 3540/8080
MATRIX: WC/CC
% MOISTURE: NA

BATCH NO.: 96F041
SAMPLE ID: LCS2S/LCS2SD
CONTROL NO.: CPF021SL/C

DATE RECEIVED: NA
DATE EXTRACTED: 06/25/96
DATE ANALYZED: 06/27/96

ACCESSION: 96F041

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Aroclor 1260	ND	250.00	216.00	86	250.00	237.00	95	9	50-150	50

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT %
Tetrachloro-m-xylene	40.00	40.50	101	40.00	39.00	98	50-150
Decachlorobiphenyl	40.00	37.60	94	40.00	37.30	93	50-150

CKY QUALITY CONTROL DATA
MS/MSD ANALYSIS

NT: Jacobs Engineering Group
JECT: Tooele / 27H10319
METHOD: EPA 3540/8080
MATRIX: WC
% MOISTURE: 7.3

BATCH NO.: 96F041
SAMPLE ID: COMP-GROUP-A
CONTROL NO.: F041-CA

DATE RECEIVED: 06/13/96
DATE EXTRACTED: 06/14/96
DATE ANALYZED: 06/20/96

ACCESSION: 96F041

PARAMETER	SMPL RSLT (ug/kg)	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Aroclor 1260	ND	269.00	173.00	64	269.00	222.00	83	25*	55-145	20

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	QC LIMIT %
Tetrachloro-m-xylene	43.10	28.80	67	43.10	31.20	72	50-150
Decachlorobiphenyl	43.10	10.60	25*	43.10	11.80	27*	50-150

* Out of QC limit

RZ

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CKY QUALITY CONTROL DATA
MS/MSD ANALYSIS

f: Jacobs Engineering Group
PROJECT: Tooele / 27H10319
METHOD: EPA 3540/8080
MATRIX: WC
% MOISTURE: 6.9

BATCH NO.: 96F041
SAMPLE ID: COMP-GROUP-C
CONTROL NO.: F041-CC

DATE RECEIVED: 06/13/96
DATE EXTRACTED: 06/14/96
DATE ANALYZED: 06/25/96

ACCESSION: 96F041

PARAMETER	SMPL RSLT (ug/kg)	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Aroclor 1260	150.00	269.00	291.00	52*	269.00	271.00	63	19	55-145	20

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	QC LIMIT %
Tetrachloro-m-xylene	43.00	37.70	88	43.00	35.40	83	50-150
Decachlorobiphenyl	43.00	23.50	55	43.00	15.25	36*	50-150

* Out of QC limit

CKY QUALITY CONTROL DATA
MS/MSD ANALYSIS

'NT: Jacobs Engineering Group
JECT: Tooele / 27H10319
METHOD: EPA 3540/8080
MATRIX: BC
% MOISTURE: 0.1

BATCH NO.: 96F041
SAMPLE ID: COMP-GROUP-D
CONTROL NO.: F041-CD

DATE RECEIVED: 06/13/96
DATE EXTRACTED: 06/14/96
DATE ANALYZED: 06/20/96

ACCESSION: 96F041

PARAMETER	SMPL RSLT (ug/kg)	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Aroclor 1260	ND	250.00	235.00	94	250.00	249.00	100	6	55-145	20

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	QC LIMIT %
Tetrachloro-m-xylene	40.00	36.30	91	40.00	36.20	90	50-150
Decachlorobiphenyl	40.00	13.20	33*	40.00	15.50	39*	50-150

* Out of QC limit

211 184

CKY QUALITY CONTROL DATA
MS/MSD ANALYSIS

IT: Jacobs Engineering Group
JECT: Tooele / 27H10319
METHOD: EPA 3540/8080
MATRIX: CC
% MOISTURE: 2.5

BATCH NO.: 96F041
SAMPLE ID: COMP-GROUP-E
CONTROL NO.: F041-CE

DATE RECEIVED: 06/13/96
DATE EXTRACTED: 06/14/96
DATE ANALYZED: 06/20/96

ACCESSION: 96F041

PARAMETER	SMPL RSLT (ug/kg)	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Aroclor 1260	ND	256.00	310.00	121	256.00	341.00	133	10	55-145	20

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	QC LIMIT %
Tetrachloro-m-xylene	41.00	23.60	58	41.00	25.10	61	50-150
Decachlorobiphenyl	41.00	9.23	23*	41.00	12.30	30*	50-150

* Out of QC limit

220

CKY QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: Jacobs Engineering Group
PROJECT: Tooele / 27H10319
METHOD: EPA 3540/8080
MATRIX: CC
% MOISTURE: 1.4

BATCH NO.: 96F041
SAMPLE ID: COMP-GROUP-G
CONTROL NO.: F041-CG

DATE RECEIVED: 06/13/96
DATE EXTRACTED: 06/14/96
DATE ANALYZED: 06/20/96

ACCESSION: 96F041

PARAMETER	SMPL RSLT (ug/kg)	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Aroclor 1260	200.00	254.00	253.00	21*	254.00	225.00	10*	71*	55-145	20

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	QC LIMIT %
Tetrachloro-m-xylene	40.60	27.60	68	40.60	25.25	62	50-150
Decachlorobiphenyl	40.60	9.66	24*	40.60	9.42	23*	50-150

* Out of QC limit

CKY QUALITY CONTROL DATA
MS/MSD ANALYSIS

'T: Jacobs Engineering Group
.CT: Tooele / 27H10319
METHOD: EPA 3540/8080
MATRIX: CC
% MOISTURE: 1.4

BATCH NO.: 96F041
SAMPLE ID: COMP-GROUP-G
CONTROL NO.: F041-CGR

DATE RECEIVED: 06/13/96
DATE EXTRACTED: 06/25/96
DATE ANALYZED: 06/27/96

ACCESSION: 96F041

PARAMETER	SMPL RSLT (ug/kg)	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Aroclor 1260	220.00	254.00	340.00	47*	254.00	360.00	55	15	55-145	20

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	QC LIMIT %
Tetrachloro-m-xylene	40.60	30.60	75	40.60	30.90	76	50-150
Decachlorobiphenyl	40.60	18.50	46*	40.60	18.90	47*	50-150

* Out of QC limit

CKY INC. ANALYTICAL LABORATORIES 630 Maple Ave. Torrance, Calif. 90503 Tel. (310) 618-8889 Fax: (310) 618-0818

Cy given to Le. Schmitter 1/8/96

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Carolyn Briggolera QA officer @ CT

COVER PAGE

Laboratory Number 125995

Army Corps of Engineers, SPDL
25 Liberty Ship Way
Sausalito, CA 94965-1768

Project#: 95-1034-04-057
Location: Tooele Bld. 659

Sample ID	Lab ID	JACOBS ID	
96-1122QM4	125995-001	160	SR-01 DD
96-1123QM4	125995-002	161	SR-10 DD
96-1124QM4	125995-003	170	BC-14 DD
96-1125QM4	125995-004	171	CC-25 DD
96-1126QM4	125995-005	180	CC-29 DD
96-1127QM4	125995-006	181	CC-44 DD

I certify that this data package has been reviewed for technical correctness and completeness. Please see attached narrative for a discussion of any analytical problems related to this sample set. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures.

Signature: _____ Date: 7-2-96
Title: Operations Manager

Signature: _____ Date: July 1, 96
Title: Project Manager

Laboratory Number: 125995 **Sample Date: 06/08-11/96**
Client: Army Corps of Engineers, SPDL **Receipt Date:06/14/96**
Project#: 95-1034-04-057
Location: Tooele Bld. 659

CASE NARRATIVE

Curtis & Tompkins received six soil samples from the Tooele Bld. 659 site on June 14, 1996 for the PCBs analysis. All samples were received cold and intact. The following analytical problems were encountered for this data set:

PCBs (EPA 8080): High DCB surrogate recoveries were observed for samples 96-1123QM4 (C&T# 125995-002), 96-1124QM4 (C&T# 125995-003) and 96-1127QM4 (C&T# 125995-006) due to matrix interferences. Surrogates for sample 96-1125QM4 (C&T# 125995-004) were diluted out. Both surrogate recoveries for the LCS were also ~~high outside~~ above the AOCE limits, but within the control chart limits for 60-150% for TCMX and 61-143% for DCB. The MS/MSD passed all acceptance crieria.

No other analytical problems were encountered for this data set.

JACOBS ENGINEERING GROUP INC.
251 S. LAKE AVE., PASADENA, CALIFORNIA 91101-3063
TELEPHONE (213)681-3781 (818)449-2171

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: TOOELE Ammun Depot TASK 59
PROJECT NUMBER: 27-11103-19
WBS CODE:

LABORATORY NAME & ADDRESS: E-MAX
630 Maple Ave.

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT
P.C.B 1	8/12/96	1300	DS	1	1L Plas	none	A)	P.C.B's		

COMMENTS:

COLLECTED & RELEASED BY: Dayt Bual	DATE: 8/12/96	TIME: 10:00	TURNAROUND TIME		
RECEIVED BY: Fed-X	DATE: 8/14/96	TIME: 10:00	RELINQUISHED BY	DATE: / /	TIME: :
RECORD RETURNED BY	DATE: / /	TIME: :			
			SHIPPING NUMBER: 340397338 1		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

92GD0087MISC

INFORMATION IN THIS SECTION FOR JACOBS USE ONLY

LOCATION	SAMPLE TYPE	DEPTH (FT) BEGIN	DEPTH (FT) END	QC CODE
Recon Drum	N	---		

SAMPLING COMMENTS:

125995

South Pacific Division
Corps of Engineers
Division Laboratory
25 Liberty Ship Way
Sausalito, CA 94965-1768
(415) 332-9693

Report ... [illegible] and a second copy to:

U.S. Army Corps of Engineers
Sacramento District
ATTN: Maryellen Mackenzie
1325 J Street
Sacramento, CA 95814-2922

TOTAL P.02

PROJECT NAME Tooele Bld 659

SAMPLERS: (signature)

LAB ID	DATE	TIME			FIELD IDENTIFICATION	NUMBER OF CONTAINERS	PRESERVATIVE USED	Soxo PCB's	Moisture	temperature					REMARKS
96-1122QM4	6-11-96	1324		S	TO-A00160	8oz jar	[illegible]	X	X						
96-1123 QM4	↓	1340		S	TO-A00161	8oz jar		X	X						
96-1124 QM4	↓	1355		S	TO-A00170	8oz jar		X	X						
96-1125 QM4	6-8-96	1115		S	TO-A00171	8oz jar		X	X						
96-1126 QM4	6-10-96	1415		S	TO-A00180	8oz jar		X	X						
96-1127 QM4	6-11-96	0930		S	TO-A00181	8oz jar		X	X						
—	—	=			temp blank	1x voa				X					

Relinquished by: (Print)	Date:	Received by (Print)	Date:	Remarks:
Paul West	6-14-96	C+T JOSE DELGADO	6-14-96	
" " (Signature)	Time: 1045	" " (Signature) [signature]	Time: 1046	

Call # DACW07-95-1034-04-057 $660.00 C+T

along with contract number on invoice. Each call number amount should not

PCBs

Client:	Army Corps of Engineers, SPDL	Analysis Method:	PCB
Project#:	95-1034-04-057	Prep Method:	EPA 3550
Location:	Tooele Bld. 659	Cleanup Method:	EPA ACID

Field ID:	96-1122QM4	Sampled:	06/11/96
Lab ID:	125995-001	Received:	06/14/96
Matrix:	Miscell.	Extracted:	06/22/96
Batch#:	28356	Analyzed:	06/25/96
Units:	ug/Kg dry weight	Moisture:	8%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	17
Aroclor-1221	ND	17
Aroclor-1232	ND	17
Aroclor-1242	ND	17
Aroclor-1248	ND	17
Aroclor-1254	ND	17
Aroclor-1260	ND	17

Surrogate	%Recovery	Recovery Limits
TCMX	111	65-135
Decachlorobiphenyl	118	65-135

PCBs

Client:	Army Corps of Engineers, SPDL	Analysis Method:	PCB
Project#:	95-1034-04-057	Prep Method:	EPA 3550
Location:	Tooele Bld. 659	Cleanup Method:	EPA ACID

Field ID:	96-1123QM4	Sampled:	06/11/96
Lab ID:	125995-002	Received:	06/14/96
Matrix:	Miscell.	Extracted:	06/22/96
Batch#:	28356	Analyzed:	06/26/96
Units:	ug/Kg dry weight	Moisture:	7%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	17
Aroclor-1221	ND	17
Aroclor-1232	ND	17
Aroclor-1242	130	17
Aroclor-1248	ND	17
Aroclor-1254	100	17
Aroclor-1260	320	17

Surrogate	%Recovery	Recovery Limits
TCMX	121	65-135
Decachlorobiphenyl	136*	65-135

* Values outside of QC limits

PCBs

Client:	Army Corps of Engineers, SPDL	Analysis Method:	PCB
Project#:	95-1034-04-057	Prep Method:	EPA 3550
Location:	Tooele Bld. 659	Cleanup Method:	EPA ACID

Field ID:	96-1124QM4	Sampled:	06/11/96
Lab ID:	125995-003	Received:	06/14/96
Matrix:	Miscell.	Extracted:	06/22/96
Batch#:	28356	Analyzed:	06/26/96
Units:	ug/Kg dry weight	Moisture:	0%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	16
Aroclor-1221	ND	16
Aroclor-1232	ND	16
Aroclor-1242	ND	16
Aroclor-1248	ND	16
Aroclor-1254	ND	16
Aroclor-1260	ND	16

Surrogate	%Recovery	Recovery Limits
TCMX	109	65-135
Decachlorobiphenyl	197*	65-135

* Values outside of QC limits

PCBs

Client:	Army Corps of Engineers, SPDL	Analysis Method:	PCB
Project#:	95-1034-04-057	Prep Method:	EPA 3550
Location:	Tooele Bld. 659	Cleanup Method:	EPA ACID

Field ID:	96-1125QM4	Sampled:	06/08/96
Lab ID:	125995-004	Received:	06/14/96
Matrix:	Miscell.	Extracted:	06/22/96
Batch#:	28356	Analyzed:	06/26/96
Units:	ug/Kg dry weight	Moisture:	2%
Diln Fac:	50		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	820
Aroclor-1221	ND	820
Aroclor-1232	ND	820
Aroclor-1242	ND	820
Aroclor-1248	ND	820
Aroclor-1254	6300	820
Aroclor-1260	840	820

Surrogate	%Recovery	Recovery Limits
TCMX	DO*	65-135
Decachlorobiphenyl	DO*	65-135

* Values outside of QC limits
DO: Surrogate diluted out

PCBs

Client:	Army Corps of Engineers, SPDL	Analysis Method:	PCB
Project#:	95-1034-04-057	Prep Method:	EPA 3550
Location:	Tooele Bld. 659	Cleanup Method:	EPA ACID

Field ID:	96-1126QM4	Sampled:	06/10/96
Lab ID:	125995-005	Received:	06/14/96
Matrix:	Miscell.	Extracted:	06/22/96
Batch#:	28356	Analyzed:	06/26/96
Units:	ug/Kg dry weight	Moisture:	1%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	16
Aroclor-1221	ND	16
Aroclor-1232	ND	16
Aroclor-1242	110	16
Aroclor-1248	ND	16
Aroclor-1254	160	16
Aroclor-1260	150	16

Surrogate	%Recovery	Recovery Limits
TCMX	124	65-135
Decachlorobiphenyl	105	65-135

PCBs

Client:	Army Corps of Engineers, SPDL	Analysis Method:	PCB
Project#:	95-1034-04-057	Prep Method:	EPA 3550
Location:	Tooele Bld. 659	Cleanup Method:	EPA ACID
Field ID:	96-1127QM4	Sampled:	06/11/96
Lab ID:	125995-006	Received:	06/14/96
Matrix:	Miscell.	Extracted:	06/22/96
Batch#:	28356	Analyzed:	06/22/96
Units:	ug/Kg dry weight	Moisture:	2%
Diln Fac:	1		

Analyte	Result	Reporting Limit
Aroclor-1016	ND	16
Aroclor-1221	ND	16
Aroclor-1232	ND	16
Aroclor-1242	110	16
Aroclor-1248	ND	16
Aroclor-1254	54	16
Aroclor-1260	57	16

Surrogate	%Recovery	Recovery Limits
TCMX	130	65-135
Decachlorobiphenyl	150*	65-135

* Values outside of QC limits

Lab #: 125995 BATCH QC REPORT

Polychlorinated Biphenyls

Client: Army Corps of Engineers, SPDL
Project#: 95-1034-04-057
Location: Tooele Bld. 659

Analysis Method: PCB
Prep Method: EPA 3550
Cleanup Method: EPA ACID

METHOD BLANK

Matrix: Miscell.
Batch#: 28356
Units: ug/Kg
Diln Fac: 1

Prep Date: 06/22/96
Analysis Date: 06/26/96

MB Lab ID: QC24933

Analyte	Result	Reporting Limit
Aroclor-1016	ND	20
Aroclor-1221	ND	20
Aroclor-1232	ND	20
Aroclor-1242	ND	20
Aroclor-1248	ND	20
Aroclor-1254	ND	20
Aroclor-1260	ND	20

Surrogate	%Rec	Recovery Limits
TCMX	121	65-135
Decachlorobiphenyl	126	65-135

Lab #: 125995 BATCH QC REPORT

Polychlorinated Biphenyls

Client:	Army Corps of Engineers, SPDL	Analysis Method:	PCB
Project#:	95-1034-04-057	Prep Method:	EPA 3550
Location:	Tooele Bld. 659	Cleanup Method:	EPA ACID

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Field ID:	96-1124QM4	Sample Date:	06/11/96
Lab ID:	125995-003	Received Date:	06/14/96
Matrix:	Miscell.	Prep Date:	06/22/96
Batch#:	28356	Analysis Date:	06/26/96
Units:	ug/Kg dry weight	Moisture:	0%
Diln Fac:	1		

MS Lab ID: QC24935

Analyte	Spike Added	Sample	MS	%Rec #	Limits
Aroclor-1260	180	<16.00	132.6	74	65-135

Surrogate	%Rec	Limits
TCMX	125	65-135
Decachlorobiphenyl	124	65-135

MSD Lab ID: QC24936

Analyte	Spike Added	MSD	%Rec #	Limits	RPD #	Limit
Aroclor-1260	180	129.6	72	65-135	2	<25

Surrogate	%Rec	Limits
TCMX	125	65-135
Decachlorobiphenyl	124	65-135

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Lab #: 125995 BATCH QC REPORT

Polychlorinated Biphenyls

Client: Army Corps of Engineers, SPDL
Project#: 95-1034-04-057
Location: Tooele Bld. 659

Analysis Method: PCB
Prep Method: EPA 3550
Cleanup Method: EPA ACID

LABORATORY CONTROL SAMPLE

Matrix: Miscell.
Batch#: 28356
Units: ug/Kg
Diln Fac: 1

Prep Date: 06/22/96
Analysis Date: 06/26/96

LCS Lab ID: QC24934

Analyte	Result	Spike Added	%Rec #	Limits
Aroclor-1260	127	176	72	65-135

Surrogate	%Rec	Limits
TCMX	138 *	65-135
Decachlorobiphenyl	139 *	65-135

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits
Spike Recovery: 0 out of 1 outside limits

012
200